R-585-1-7-22
SITE INSPECTION OF
PORTSMOUTH DAY CARE CENTER
PREPARED UNDER

TDD NO. F3-8612-41
EPA NO. VA-415
CONTRACT NO. 68-01-7346

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

SEPTEMBER 25, 1987

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
[redacted]	[redacted]	[redacted]
ENVIRON. SCIENTIST	ASSISTANT MANAGER	REG. OPERATIONS MANAGER, FIT 3

"Non-Responsive-Based on Revised Scope"

Site Name: Portsmouth Day Care Center
TDD No.: F3-8612-41

TABLE OF CONTENTS

ORIGINAL (Red)

ORIGINAL (Red)

APPENDICES

ORIGINAL
(Red)

SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-7346. This specific report was prepared in accordance with Technical Directive Document No. F3-8612-41 for the Portsmouth Day Care Center site, located in Porstmouth, Virginia.

1.2 Scope of Work

NUS FIT 3 was tasked to conduct sampling and provide technical support at the Portsmouth Day Care Center site.

1.3 Summary

The subject site is an active day care center located in Portsmouth, Virginia. FIT 3 was tasked to accompany and assist EPA personnel during emergency sampling at the site. Earlier on-site soil sample analysis had revealed levels of up to 2,000 ppm of lead.

On May 11, 1986, NUS FIT 3 accompanied and assisted EPA personnel during emergency sampling at the subject site. A total of 20 soil samples and 8 wipe samples were collected by the FIT. Analytical results of the soil samples revealed lead concentrations within ranges generally reported in urban areas.

A complete quality assurance review and toxicological evaluation can be found in sections 6.0 and 7.0, respectively.

ORIGINAL
(Red)

SECTION 2

2.0 THE SITE

2.1 Location

The Portsmouth Day Care Center is located on the corner of Lincoln and Fifth Streets in Portsmouth, Virginia. The site is located in a densely populated urban setting. The approximate center of the site can be located on the Norfolk South, Virginia Quadrangle at 36°49'30" latitude and 76°18'0" longitude, or 9 inches south and 11 inches east as measured from the northwest corner of the United States Geological Survey (U.S.G.S.) Norfolk South, Virginia Quadrangle (refer to figure 1, appendix B).

2.2 Site Layout

The site property is approximately 1/2 acre in size. The site consists of one main building and a playground. The entire site is fenced (see appendix B, figure 2).

The property is bordered to the north by Lincoln Street and to the west by Fifth Street. Empty lots border the site to the south and east.

The Abex Corporation site, a potential National Priorities List candidate, is located approximately 1/4 mile northeast of the site. The Norfolk Naval Shipyard is located approximately 1-1/4 miles south of the site.

2.3 Ownership History

The city of Portsmouth has owned the site property since the 1940s. Currently, the property lies under the jurisdiction of the Portsmouth Redevelopment and Housing Authority.

The Portsmouth Day Care Center has leased the property from the city since 1975. However, the center is city funded and is operated by the Portsmouth Child Health and Welfare Program.

2.4 Site Use History

According to the Portsmouth Redevelopment and Housing Authority, the site has operated as a day care center since the 1940s. Currently, the city of Portsmouth has plans to develop the property and the surrounding area into a commercial park.

2.5 Permit and Regulatory Action History

The site has no known permit or regulatory action history.

2.6 Remedial Action To Date

There has been no remedial action at the site.

ORIGINAL
(Red)

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

Drinking water for the city of Portsmouth is obtained primarily from 4 lakes located in Suffolk County, approximately 16 miles southwest of Portsmouth. These include (b) (9) [redacted]. The total drainage area of the 4 lakes is 58 square miles, which constitutes a reserve of 5.2 billion gallons. Three deep wells located at (b) (9) [redacted] are also used as a supply source. Water from two wells located at (b) (9) [redacted] is mixed with lake water as a means of fluoridation, while water from the well at (b) (9) [redacted] is discharged directly into the lake. Two additional wells are being constructed at (b) (9) [redacted] Lake for emergency back-up supply.[6]

The Portsmouth Water Company services 100,000 industrial and residential customers in Portsmouth and portions of Suffolk and Chesapeake. The city of Norfolk, which is also located within three miles of the site, obtains its water supply from a series of lakes and wells located in Suffolk and Norfolk Counties.[6]

Groundwater is used for cooling and process water by industries located within a three-mile radius of the site.[7] No known surface intakes, recreational facilities, or potable drinking wells are located within three miles of the site area.

3.2 Surface Waters

Surface runoff from the site is collected by storm sewers and discharged into the Southern Branch of the Elizabeth River.[8] The Virginia State Water Quality Standards under State Water Control Law, Section 62.1-44.15 (3) classifies the Southern Branch of the Elizabeth River as an estuarine water body with special standards for shellfish.[9] The Southern Branch of the Elizabeth River flows north into the Elizabeth River, which joins the James River north of the site area and then the Chesapeake Bay to the northeast.[10]

There are no known surface water intakes within three miles of the site area. However, the Southern Branch of the Elizabeth River receives non-point source discharges.[13]

3.3 Hydrogeology

3.3.1 Geology

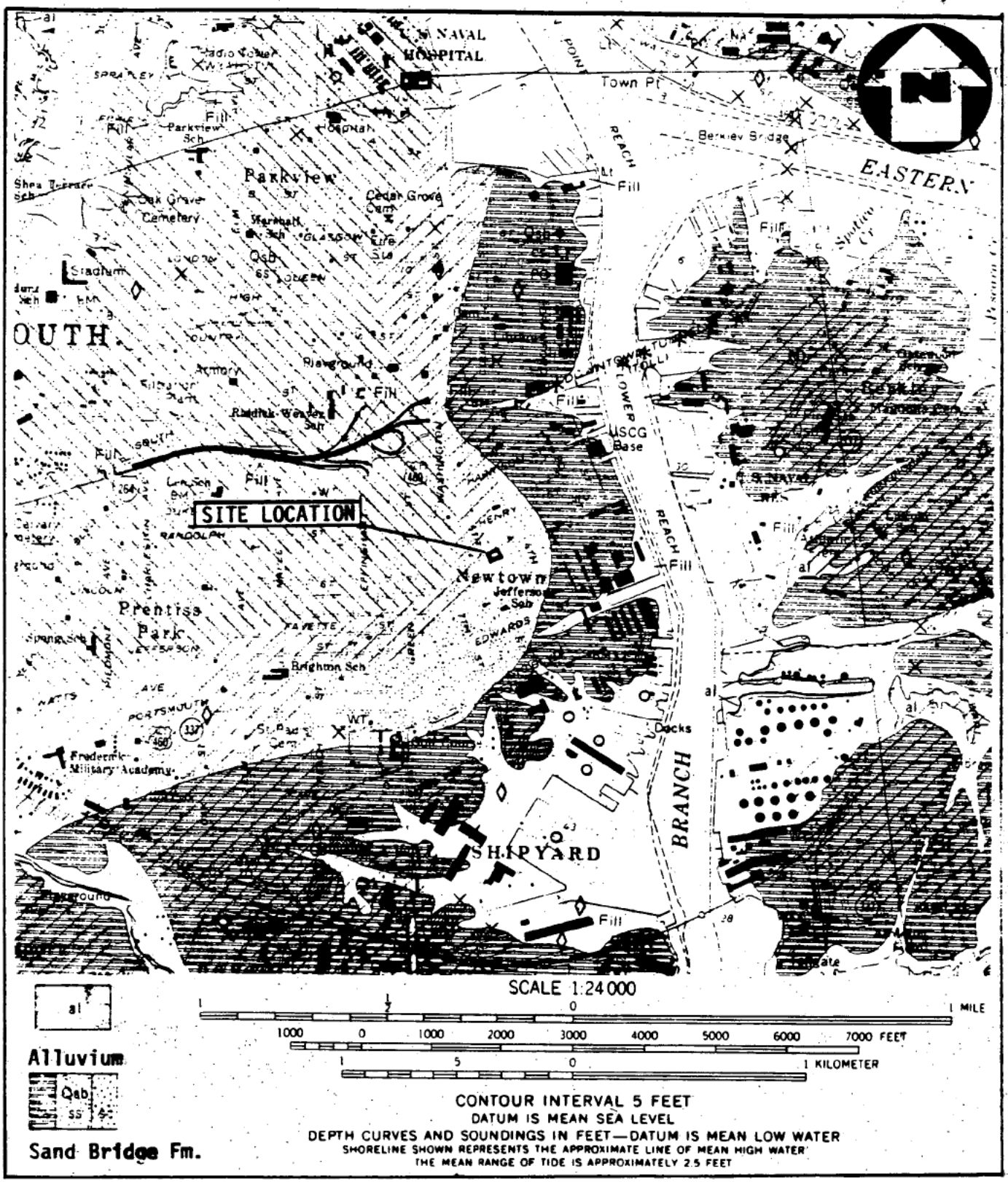
The Portsmouth Day Care Center site is located within the Coastal Plain Physiographic Province. Sluggish tidal rivers, stretches of flat land, and the absence of hard rocks are all characteristic of the province. Within Virginia, gravels, sands, clays, loams, and shell marls of early Cretaceous to Holecene age form an eastward thickening wedge which reaches a thickness of 2,700 feet beneath the site. In some places, some sands have been consolidated into sandstones, clays into shales, and shell beds into lime rock; however, these units generally are thin, irregular layers of limited extent.[1,2]

The upper member of the late Pleistocene Sand Bridge Formation (of the Columbia Group) underlies the subject site. Within the Norfolk, Virginia area, the upper member of the sand bridge is comprised of four facies, two of which crop out in the study area, the silty-sand and clayey-sand (see figure A, page 3-3).[3,4] Barker and Bjorken (1978) provide the following descriptions of the units:

1. Silty-sand facies:* This unit, which underlies the site, is described as a clean, homogeneous, fine to medium sand with silt concentration of 10 to 35 percent. The maximum thickness is approximately 25 feet and the average thickness is 12 to 14 feet. It is described as river-influenced lagoonal deposits.[3]

2. Clayey-sand facies:* The unit lithologically ranges from clayey-sand, silt, and clay to well-sorted, fine to medium sand. It ranges from 10 to 15 feet thick in the western portion of the study area to 40 feet thick near the branches of the Elizabeth River. The unit is described as tidal channel deposits.[3]

ORIGINAL (Red)



Barker and Bjorken, 1978

FIGURE A

GEOLOGIC MAP

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3. Silty-clay facies:* This unit is not present in the study area. It is described as a massive, cohesive clay and silt with approximately 20 percent fine sand. The unit is thin, only approximately 15 feet thick when combined with the lower member of the Sand Bridge Formation (described below). It was deposited under lagoonal conditions.[3]

4. Sand facies:* This unit is not present in the study area. It is described as a tan to light-gray, fine to coarse sand.[3]

*Barker and Bjorken (1978) provide no age order for the facies.

All of the aforementioned facies of the upper member of the Sand Bridge Formation overlie a homogeneous lower member composed of massively bedded, tan to light-gray, fine to medium sand with small amounts of pebbles. The lower member is a blanket deposit of variable thickness. Locally, erosion, occurring during the deposition of the upper member, has totally removed the lower member, and the various facies of the upper member overlie the early Pleistocene Norfolk Formation, also of the Columbia Group.[3,4]

The Norfolk Formation, which does not outcrop within three miles of the subject site, also contains an upper and lower member within the study area; only the clayey-silty-sand facies of the upper member is present. This facies is described as a cross-bedded, fine to medium sand with isolated gravel and sand layers containing varying concentrations of silt and silty clay. The average thickness of the facies is 18.5 feet and, locally, the unit subcrops within 4 feet of the surface. Its depositional environment is believed to have been fluvial estuarine and brackish marine. The lower member is composed of clean quartz sand and fine gravel; the thickness of the unit ranges from zero to eight feet, and it is considered a beach sand. Within the study area, the Norfolk Formation, as a whole, may reach a thickness of 50 feet where deposited in channels cut into the underlying Yorktown Formation; however, over topographic highs in the Yorktown, the Norfolk is absent or only a few inches thick.[3]

The late Pliocene Yorktown Formation of the Chesapeake Group is described as a massively bedded, compact, greenish-gray fossiliferous fine sand, with an upper, predominantly clayey, bed which is approximately 35 feet thick in the study area.[2,3,4] Quartz comprises the bulk of the sand; however, a small amount of glauconite provides the Yorktown with its distinctive greenish-gray coloration.[3,4] Also present are layers of shelly material, composed of snails and attached barnacles and bryozoans, and thin silty clay layers. The greenish-gray color and molluscan fauna are excellent characteristics used to identify the Yorktown. Beneath the site, the top of the Yorktown is approximately 50 feet below the surface; however, 1/2 mile west of the site, the unit lies only 20 feet below the surface. Its total thickness is approximately 150 feet. The depositional environment of the formation is interpreted to be a continental shelf with warm waters approximately 75 to 150 feet deep.[3]

Underlying the Yorktown is the late Miocene Eastover Formation. Meng and Harsh (1984) describe the Eastover as a fine to coarse, commonly shelly sand, interbedded with silts, clays, shell beds, and gravels. No information concerning the thickness of the unit is available; however, it is known that the Eastover was deposited in a shallow marine environment.

In addition to the aforementioned units, surficial deposits of Holocene age alluvium, sand, and marsh sediments lie along all the major bodies of water within the study area (in some areas, fill has covered the natural alluvial deposits). These deposits range from organic silt to clean sand and are a few inches to 100 feet thick.[3]

3.3.2 Soils

No soils information is presently available.

3.4 Groundwater

Available information indicates that wells within the study area draw primarily from two aquifers, an upper water-table aquifer (Columbia aquifer) and an artesian aquifer (Yorktown - Eastover aquifer). The Columbia aquifer consists of the Holocene and Pleistocene age deposits (alluvial deposits and Sand Bridge and Norfolk Formations). The Yorktown - Eastover aquifer is defined by the predominantly sandy deposits of the Pliocene Lower Yorktown and late Miocene Eastover Formations. The upper Yorktown consists of predominantly clayey deposits which form the Yorktown confining bed responsible for the artesian conditions existing within the Yorktown - Eastover aquifer.[2,4]

Within both aquifers, water moves and is stored via intergranular openings (primary porosity); hence, water moves quite easily, and there is a large volume available in storage. Pump test information is lacking, but it is known that wells dug, drilled, or jetted within the study area are mainly used for industrial purposes such as boiler feed or air conditioning.[4] The majority of these wells draw from the Yorktown - Eastover aquifer and are generally 40 to 70 feet deep.[2,4] Most of the wells are in batteries, which are groups of 2 to 40 wells with diameters ranging from 2.4 to 4 inches; individually, the wells average 5 to 10 gallons per minute (gpm). Wells drawing from the Columbia aquifer are generally 15 to 30 feet deep. The majority of wells producing from the Columbia are also in batteries; these batteries can produce up to 55,000 gallons daily. Cederstrom (1945) reports that static water levels within the Columbia vary greatly but average five to eight feet below the surface. Static levels within wells drawing from the Yorktown are reported to average 15 feet below the land surface.[4]

The quality of water produced from both aquifers is generally considered hard; the total hardness ranges from 100 to 228 ppm. It is present largely as calcium bicarbonate. The chloride content averages 100 ppm and no difficulty with salty or brackish water has been reported.[4]

Recharge to the Columbia aquifer occurs via direct infiltration of precipitation. Recharge to the Yorktown - Eastover aquifer occurs via downward leakage of precipitation through the Yorktown confining bed and through direct infiltration of precipitation in its outcrop belt, approximately 40 miles west of the site. Groundwater discharges from the water-table aquifer to surface water bodies and the underlying artesian aquifer systems.[5]

The direction of flow of the water-table aquifer would be predicted to be eastward toward discharge into the Southern Branch of the Elizabeth River, based upon the general correspondence of water-table contours to topographic contours. Flow within the artesian aquifer could be expected to be directed downdip, towards the east. It should be noted, though, that local aberrations in the geology or pump demands could alter this simplified regime, as indicated by groundwater sinks within stratigraphically lower aquifers.[5]

3.5 Climate and Meteorology

Data obtained from the Climatic Atlas of the United States show a normal annual total precipitation of 45 inches, with a mean annual lake evaporation of 40 inches for the Portsmouth area.[11] This produces an average net precipitation of five inches per year for the area.

The average annual temperature for the Norfolk and Portsmouth, Virginia area is 59.5°F. The coldest month is generally January, with a temperature of 39.9°F. The hottest month is July, with a mean temperature of 78.4°F.[11]

3.6 Land Use

The subject site is located within a densely populated, urban area in Portsmouth, Virginia. The site is situated in a residential section of the city. The Norfolk Naval Shipyard is located approximately 1-1/4 mile south of the site.

3.7 Population Distribution

According to 1980 census information, the population of Portsmouth is 104,577. Portions of Chesapeake and Norfolk are also located within the 3-mile radius of the site and have populations of 114,586 and 266,979, respectively.

The number of people on the Norfolk Naval Shipyard base, at any given time, averages 18,000. Of this, 13,134 are civilian and military employees, according to a 1983 census. The total number of people on the base during periods of greatest activity has gone as high as 25,000.[12]

The total estimated population within a 1-, 2-, and 3-mile radius of the site is 34,859, 107,880, and 250,948, respectively. There are an estimated 8,714 residents within a 1/4-mile radius of the site.[12]

3.8 Critical Environments

According to the United States Fish and Wildlife Service, there are no known endangered species inhabiting the Portsmouth area. However, the Bald Eagle is considered a transient species because it has no established habitat within the area. The closest known endangered species is the Red Caucasian Woodpecker (Picoides borealis) in Suffolk City, approximately 15 miles southwest of Portsmouth.

3.9 References

1. Sanford, Samuel, Virginia Geological Survey. The Underground Water Resources of the Coastal Plain Province of Virginia. Bulletin No. V, 1913.

2. Meng, A. A. III, and J. F. Harsh, United States Geologic Survey. Hydrogeologic Framework of the Virginia Coastal Plain. Open File Report 84-728, 1984.

3. Barker, W. J., and E. D. Bjorken, Virginia Division of Mineral Resources. Geology of the Norfolk South Quadrangle, Virginia. Publication 9, Text and 1:24,000 scale map, 1978.

4. Cederstrom, D. J., Virginia Geological Survey. Geology and Groundwater Resources of the Coastal Plain in Southeastern Virginia. Bulletin 63, 1945.

5. Geraghty and Miller, Incorporated. Availability of Groundwater in the Southeastern Virginia Groundwater Management Area. Virginia State Water Supply Commission. March 1979.

6. Walski, James, Portsmouth Water Company, with Diane DeNardo, NUS FIT 3. Telecon. August 6, 1985.

7. DuBuchananne, George D. Groundwater Resources of the Eastern Shore of Virginia and the James, York, and Rappahannock River Basins of Virginia East of the Fall Line. Hydrologic Investigations Atlas HA-284, 1968.

8. Bell, Rock, Porstmouth Public Works Engineering Department, with Diane DeNardo, NUS FIT 3. Telecon. August 7, 1985.

9. Virginia State Water Control Law (Title 62.1, Code of Virginia, Chapter 3.1, State Water Control Law; As amended through August 1980).

10. United States Geological Survey. Norfolk South, Virginia Quadrangle, 7.5 Minute Series. Topographic Map. 1965, photorevised 1980.

11. United States Department of Commerce, National Climatic Center. Climatic Atlas of the United States. 1979.

12. Stefano, Maria, United States Census Bureau, with [non responsive based on revised scope], NUS FIT 3. Telecon. August 7, 1985.

13. Masiello, Remo, Virginia State Water Control Board, with [non responsive based on revised scope], NUS FIT 3. Telecon. June 4, 1987.

SECTION 4

4.0 WASTE TYPES AND QUANTITIES

The facility is a child day care center. The site has no known history of generation or storage of hazardous wastes.

SECTION 5

5.0 FIELD TRIP REPORT

5.1 Summary

On May 11, 1986, FIT 3 members "non responsive based on revised scope" accompanied and assisted EPA personnel during emergency sampling at the Portsmouth Day Care Center. A total of 20 soil samples and 8 wipe samples were collected at various locations selected by EPA personnel. Soil sample locations can be found in figure 3 of appendix B.

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Darius Ostrauskas
U.S. EPA
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, PA 19107
(215) 597-6488

5.2.2 At The Site

Robin Aitken
U.S. EPA
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, PA 19107
(215) 597-6679

Lisa Clark
Virginia Health Department
Bureau of Hazardous Water Management
11th Floor, Monroe Building
101 North 14th Street
Richmond, VA 23219
(804) 225-2667

Darius Ostrauskas
U.S. EPA
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, PA 19107
(215) 597-6488

TDD Number F3-8602-41

EPA Number

5-3 SAMPLE LOG

Site Name Potomac Dog Service

TRAFFIC REPORTS Organic	TRAFFIC REPORTS Inorganic	TRAFFIC REPORTS High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
	MCF199		Soil 1	Sol	Low Conc. Soils	6/4/86	0910		Rocky Mountain Lab	Analytical
	MCF200		Soil 2	Sol			0915			
	MCD757		Soil 3	Sol			0920			
	MCD758		Soil 4	Sol			0925			
	MCD759		Soil 5	Sol			0930			
	MCD760		Soil 6	Sol			0935			
	MCD761		Soil 7	Sol			0940			
	MCD762		Soil 8	Sol			0945			
	MCD763		Soil 9	Sol			0945			
	MCD764		Soil 10	Sol			0948			
	MCD765		Soil 11	Sol			0953			
	MCD766		Soil 12	Sol			0953			
	MCD767		Soil 13	Sol			1005			
	MCD768		Soil 14	Sol			1005			
	MCD366		Soil 15	Sol			1020			
	MCD666		Soil 16	Sol			1025			
	MCD667		Soil 17	Sol			1030			
	MCD668		Background Soil #1	Sol			1130			
	MCD669		Background Soil #2	Sol			1150			
	MCD670		Blank	Sol			1230			

(Page 1 of 1)

TDD Number E3-8612-41
EPA Number

5-3 **SAMPLE LOG**

Site Name Portsmouth Gaseous Diffusion

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS CRL Sample #	LABORATORY
			Wipe 1		North left sill	6/4/96	0956		86061713	CRL
			Wipe 2		North left sill		1012		86061714	Metals only
			Wipe 3		Door ledge		1020		86061715	
			Wipe 4		Westside Air Cond		1034		86061716	
			Wipe 5		Westside Canopy		1046		86061717	
			Wipe 6		East side sill		1100		86061718	
			Wipe 7		Blank		1115		86061719	
			Wipe 8		Background - Westside		1150		86061720	

ORIGINAL (RED)

ORIGINAL (RED)

5.4 Site Observations

- The HNU background reading was .2 ppm; no readings above background were recorded.
- The site property is approximately 100 by 200 feet in size.
- The entire property is fenced.
- All sample locations were chosen by Darius Ostrauskas, the EPA representative.
- The mini-alert was set at X1; no readings above background were recorded.
- Samples were collected in areas of bare soil.
- Wipe samples were selected and obtained by EPA personnel.

ORIGINAL (Red)

5.5 PHOTOGRAPH LOG

Photo No. 1
Soil 1

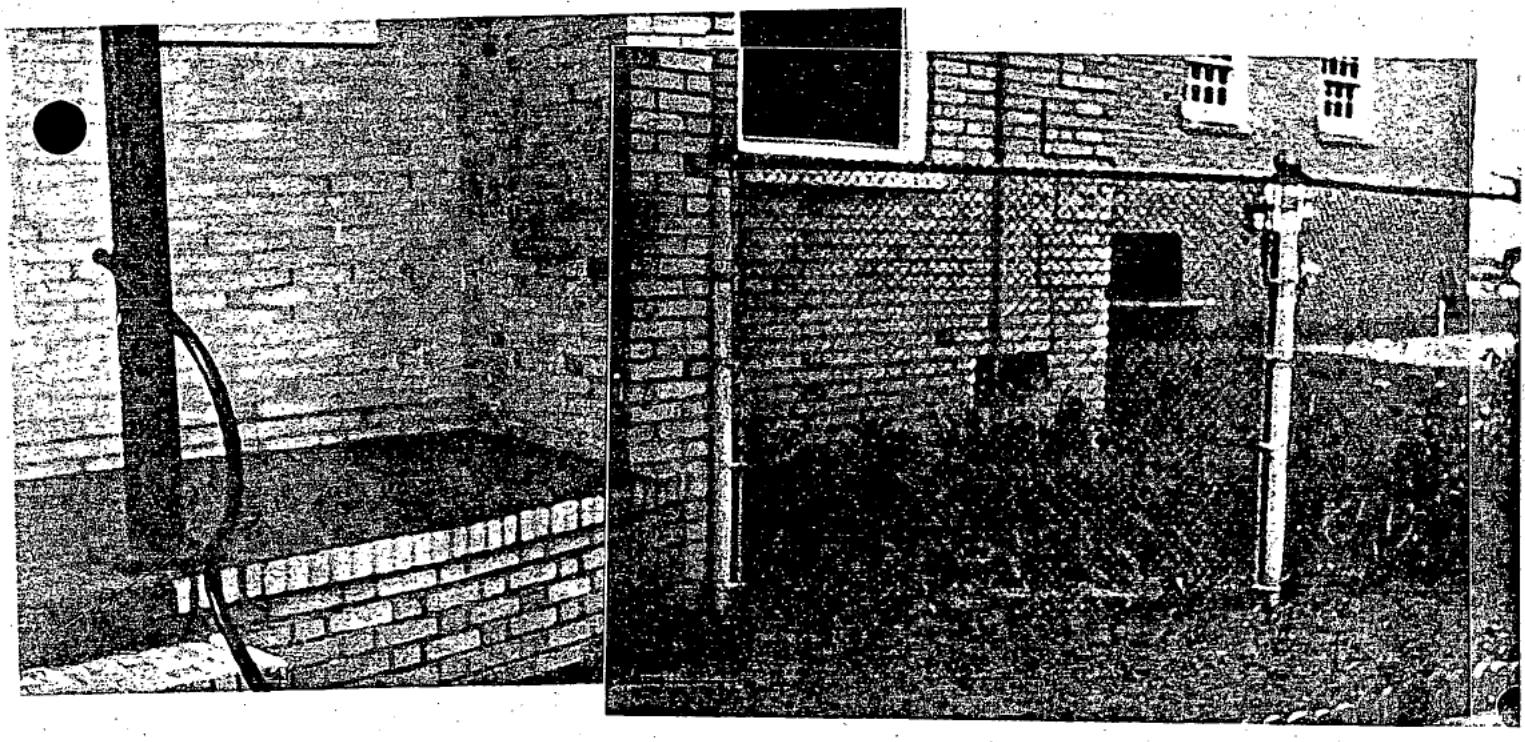

Photo Nos. 2,3
Soil 2

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No. F3-8612-41

R, P1
Photo 1

Soil 1

6/11/86

"Non-Responsive-Based on Revised Scope"

0910

Portsmouth Day Care Center
TDD No. F3-8612-41

Portsmouth Day Care Center
TDD No. F3-8612-41

R, P2
Photo 2

Soil 2

Soil 2

6/11/86

"Non-Responsive-Based on Revised Scope"

6/11/86

"Non-Responsive-Based on Revised Scope"

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ORIGINAL (Red)

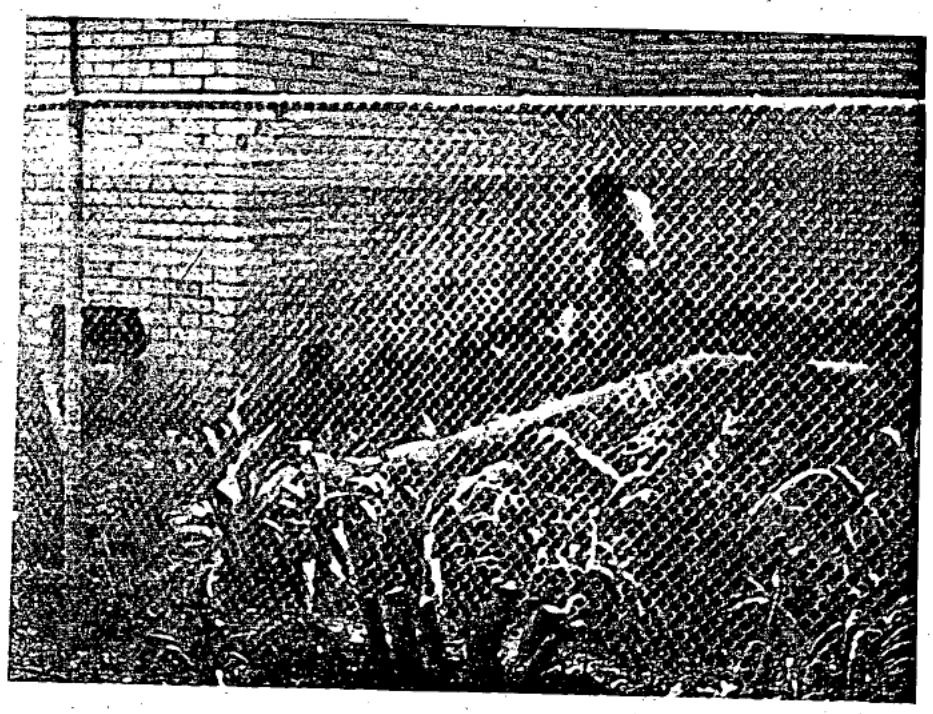

Photo No. 4

Soil 3

Photo No. 5

Soil 4

ORIGINAL
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Portsmouth Day Care Center
TDD No. P3-8612-41

R, P4
Photo 4

Soil 3

6/11/86

"Non-Responsive-Based on Revised Scope"

0920

Portsmouth Day Care Center
TDD No. P3-8612-41

R, P5
Photo 5

Soil 4

6/11/86

"Non-Responsive-Based on Revised Scope"

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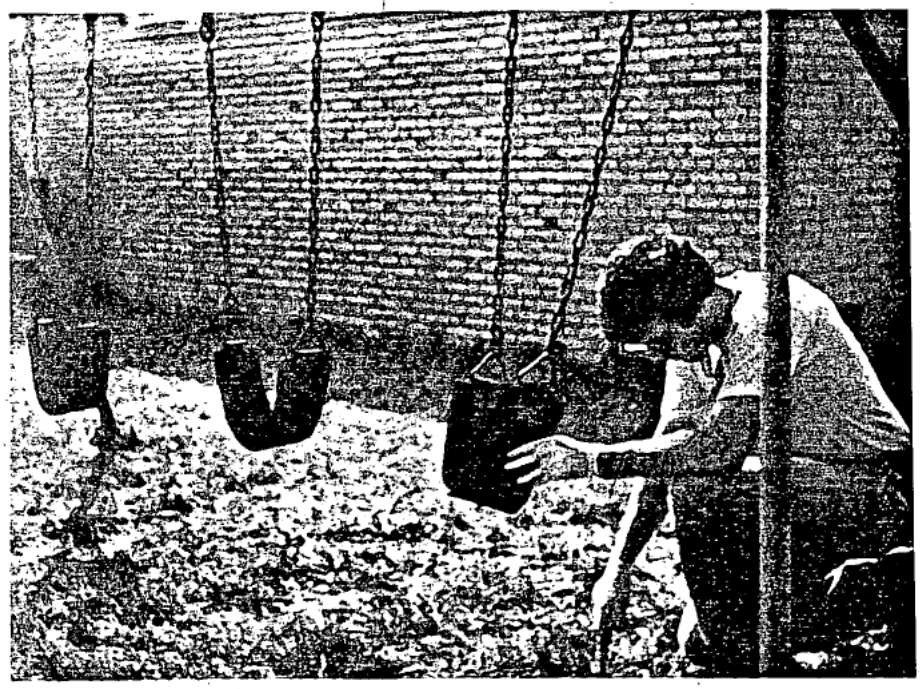

Photo No. 6

Soil 5

Photo No.7

Soil 6

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No. F3-8612-41

R, P4
Photo 6

Soil 5

4/11/94

"Non-Responsive-Based on Revised Scope"

0930

Portsmouth Day Care Center
TDD No. F3-8612-41

R, P7
Photo 7

Soil 6

4/11/94

"Non-Responsive-Based on Revised Scope"

0935

Photo No. 8

Soil 7

Photo No. 9

Soil 8

ORIGINAL

Portsmouth Day Care Center
TDD No. F3-8618-41

R,P3
Photo 8

Soil 7

4/11/56

"Non-Responsive-Based on Revised Scope"

0940

Portsmouth Day Care Center
TDD No. F3-8618-41

R,P9
Photo 9

Soil 8

4/11/56

"Non-Responsive-Based on Revised Scope"

0943

ORIGINAL (Red)

Photo No. 10

Soil 9

Photo No. 11

Soil 10

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No. F3-8612-41

R, P10
Photo 10

Soil 9

4/11/86

"Non-Responsive-Based on Revised Scope"

0945

Portsmouth Day Care Center
TDD No. F3-8612-41

R/11
Photo 11

Soil 10

4/11/86

"Non-Responsive-Based on Revised Scope"

0950

ORIGINAL (Red)

Photo No. 12

Soil 11

Photo No. 13

Soil 12

ORIGIN

Portsmouth Day Care Center
TDD No. F3-8612-41

R, P, 2
Photo 12

Soil 11

6/11/86

"Non-Responsive-Based on Revised Scope"

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Portsmouth Day Care Center
TDD No. F3-8612-41

R, P, 1
Photo 13

Soil 12

6/11/86

"Non-Responsive-Based on Revised Scope"

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ORIGINAL (Red)

Photo No. 14

Soil 13

Photo No. 15

Soil 14

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No F3-8612-41

R2P2
Photo 14

Soil 13

4/11/84
"Non-Responsive-Based on Revised Scope"

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Portsmouth Day Care Center
TDD No F3-8612-41

R2P3
Photo 15

Soil 14

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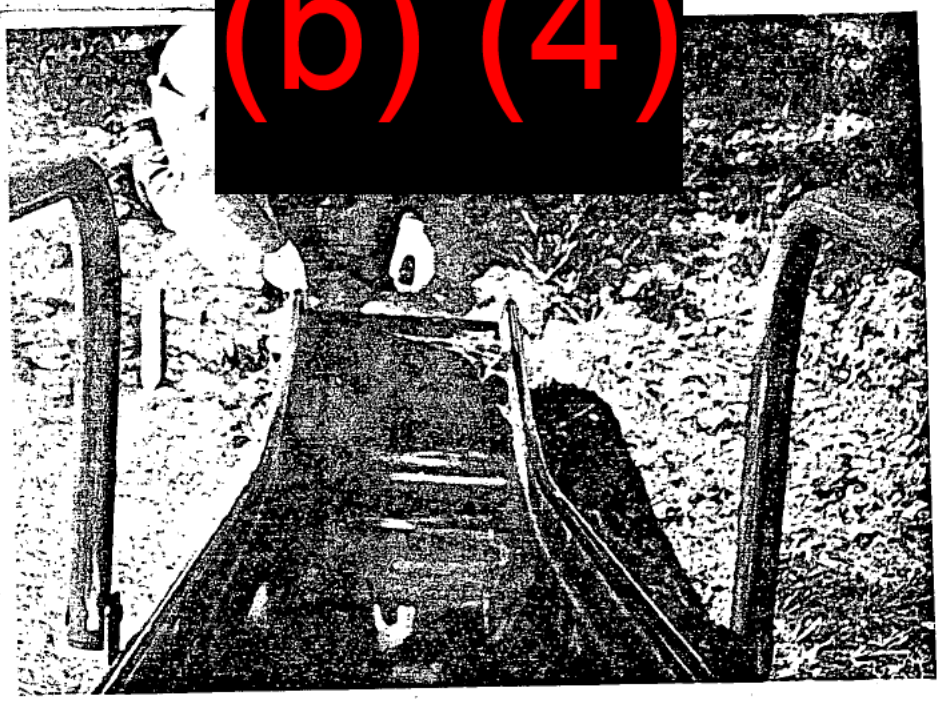
"Non-Responsive-Based on Revised Scope"

1015

ORIGINAL (Red)

(b) (4)



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Soil 16

(b) (4)

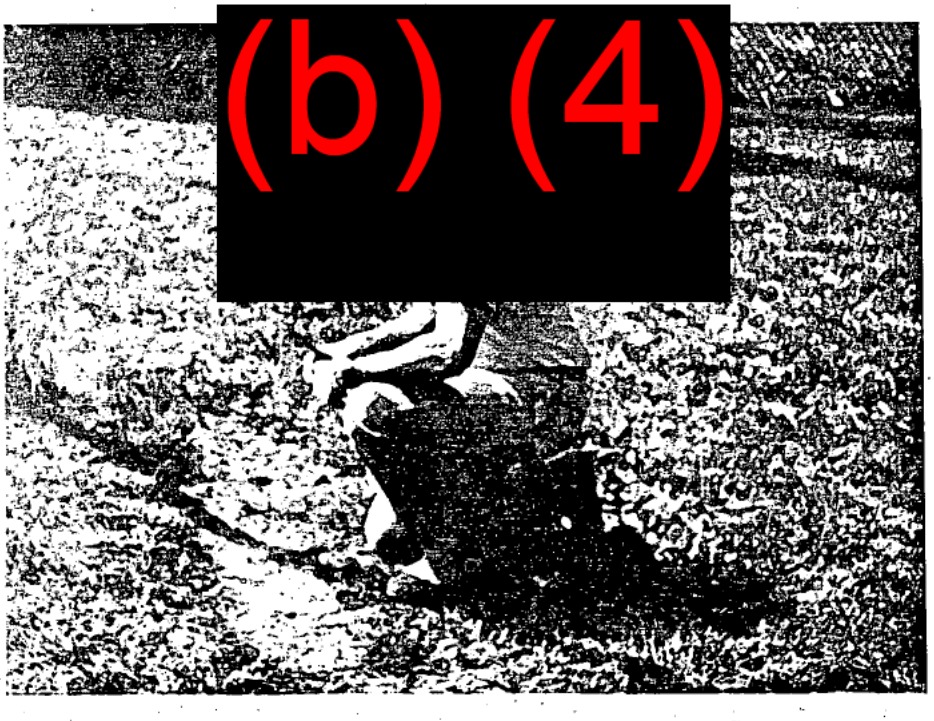

Photo No. 17

Soil 17

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No F3-8612-41

R2P5
Photo 16

Soil 16

6/11/86

"Non-Responsive-Based on Revised Scope"

1025

Portsmouth Day Care Center
TDD No. F3-8612-41

R2P6
Photo 17

Soil 17

6/11/86

"Non-Responsive-Based on Revised Scope"

1030

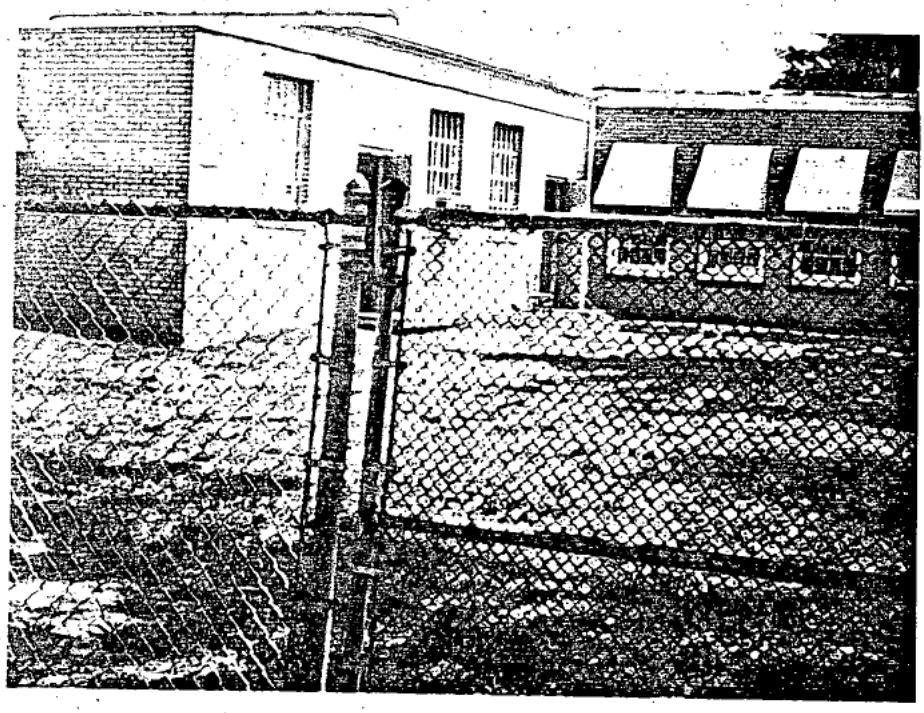

Photo No. 18
Panorama of southern portion of building.

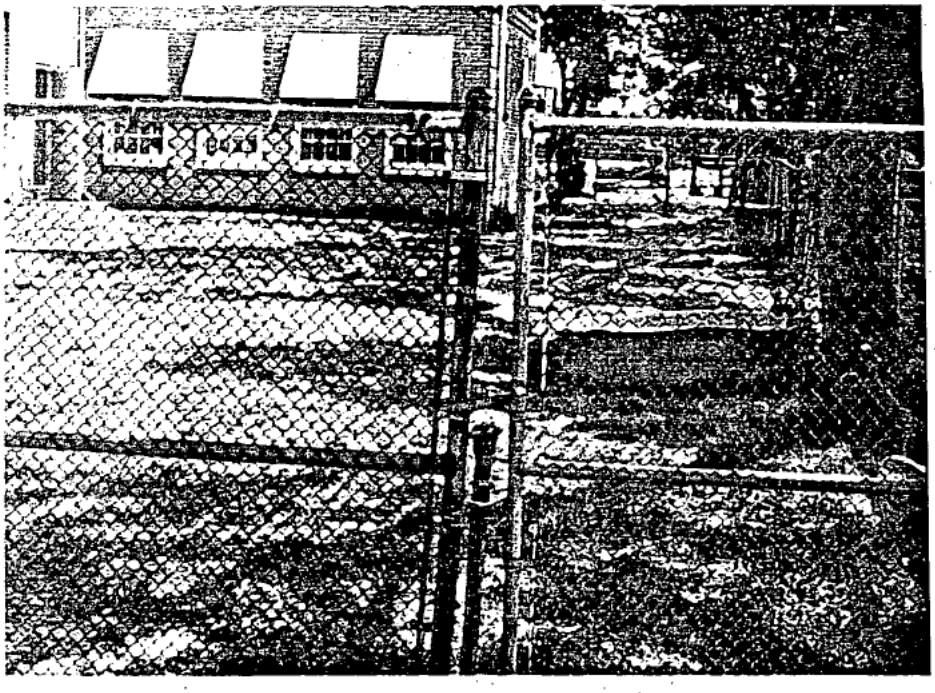

Photo No. 19
Panorama of southern portion of building.

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No. F3-8412-41

R3 P2
Photo 19

Pan of Southern portion of Building.

4/4/84

"Non-Responsive-Based on Revised Scope"

1115

Portsmouth Day Care Center
TDD No. F3-8412-41

R3 P3
Photo 19

Pan of southern portion of building.

4/4/84

"Non-Responsive-Based on Revised Scope"

1115

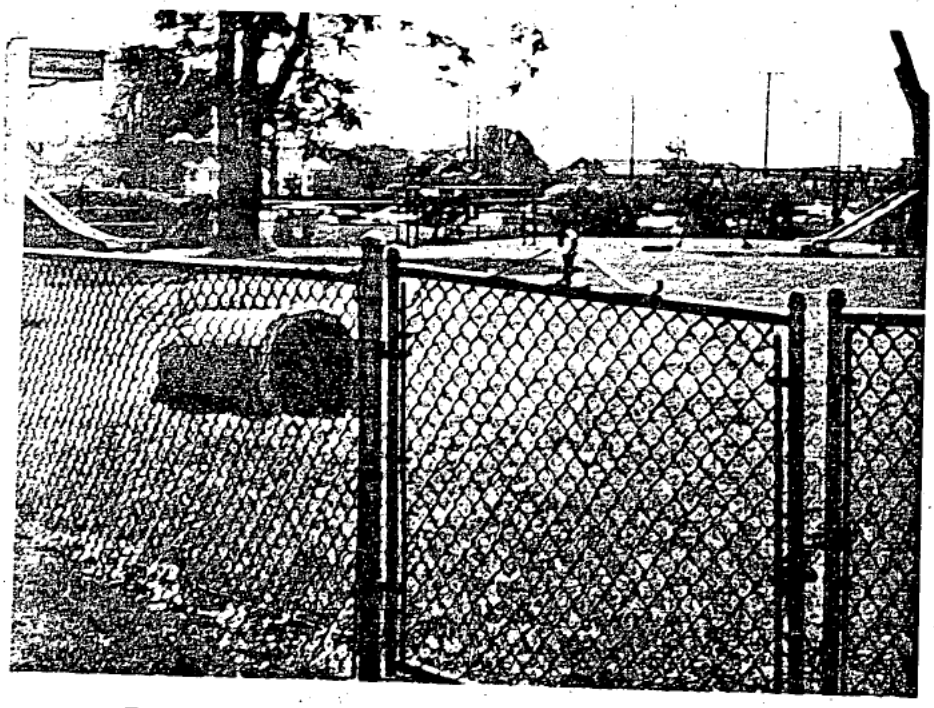

Photo No. 20
Playground area.

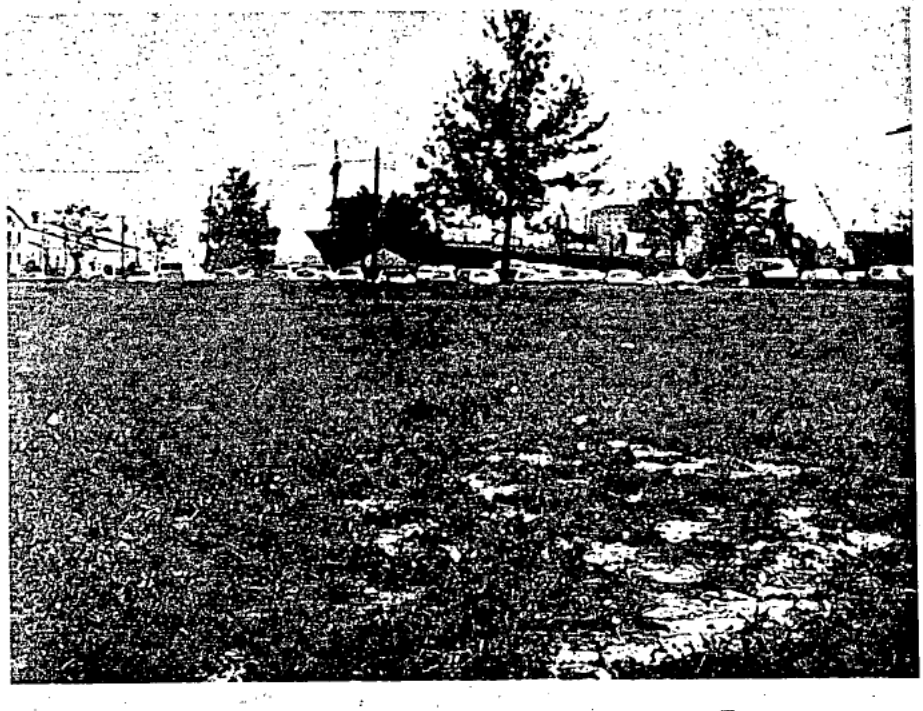

Photo No. 21
Background soil #1
Lincoln and Third Avenues.

ORIGINAL (Red)

Portsmouth Day Care Center
TDD No. F3-8612-41

R3 P6
Photo #0

Playground Area

6/11/86

"Non-Responsive-Based on Revised Scope"

1120

Portsmouth Day Care Center
TDD No. F3-8612-41

R3 P7
Photo #1

Background Soil #1
Lincoln and 3rd Ave's

6/11/86

"Non-Responsive-Based on Revised Scope"

1135

ORIGINAL (Red)

F3-8612-41

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION
01 STATE: VA | 02 SITE NUMBER: 415

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Portsmouth Day Care Center	Lincoln and Fifth Streets				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Portsmouth	VA	23704	N/A	740	04

09 COORDINATES: LATITUDE 36° 49' 30" | LONGITUDE 76° 18' 0"

10 TYPE OF OWNERSHIP (Check one): [X] A. PRIVATE [ ] B. FEDERAL [ ] C. STATE [ ] D. COUNTY [ ] E. MUNICIPAL [ ] F. OTHER [ ] G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION: 6 / 11 86 (MONTH DAY YEAR)

02 SITE STATUS: [X] ACTIVE [ ] INACTIVE

03 YEARS OF OPERATION: 1975 (BEGINNING YEAR) present (ENDING YEAR) [ ] UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply): [ ] A. EPA [X] B. EPA CONTRACTOR NUS Corp. (Name of firm) [ ] C. MUNICIPAL [ ] D. MUNICIPAL CONTRACTOR (Name of firm) [ ] E. STATE [ ] F. STATE CONTRACTOR (Name of firm) [ ] G. OTHER (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
"Non-Responsive-Based on Revised Scope" [redacted]	Environmental Scientist	NUS	"non responsive based on revised scope" [redacted]
	10 TITLE	11 ORGANIZATION	
	Assistant Manager	NUS	
	Assistant Manager	NUS	
Darius Ostrauskas	SIO	EPA	(215) 597-6488
Robin Aitken	Enforcement	EPA	(215) 597-6679
Lisa Clark	VA Health Department Representative		(804) 225-2667

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
			( )
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
[X] PERMISSION [ ] WARRANT	0815	The weather was clear and windy with temperatures in the mid-70

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Darius Ostrauskas	U.S. EPA	(215) 597-6488

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
"Non-Responsive-Based on Revised Scope" [redacted]	FIT III	NUS	(215) 687-9510	1 / 20 87 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

ORIGINAL (Red)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	415

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- B. POWDER, FINES
- C. SLUDGE
- D. OTHER (Specify)
- E. SLURRY
- F. LIQUID
- G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS
- CUBIC YARDS: Unknown
- NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- B. CORROSIVE
- C. RADIOACTIVE
- X D. PERSISTENT
- E. SOLUBLE
- F. INFECTIOUS
- G. FLAMMABLE
- H. IGNITABLE
- I. HIGHLY VOLATILE
- J. EXPLOSIVE
- K. REACTIVE
- L. INCOMPATIBLE
- M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	Unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

→ NO KNOWN ON-SITE DISPOSAL

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
MES	Lead	7439-92-1	No known on-site disposal	1,350	mg/kg
MES	Chromium	7440-47-3	No known on-site disposal	22	mg/kg
MES	Copper	7440-50-8	No known on-site disposal	99	mg/kg
MES	Arsenic	7440-38-2	No known on-site disposal	8.6	mg/kg

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS	N/A		FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis reports)

NUS sampling on May 11, 1986.

EPA FORM 2070-13(7-81)

ORIGINAL (Red)

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	415

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

The potential does exist for contaminants to be leached into the water table. There is no groundwate used in the site area for potable supplies.

01 ☐ B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Contaminated runoff could enter the city's storm water sewer system and be discharged into the Elizabeth River. There are no intakes on the river within the three-mile radius study area.

01 ☐ C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Unknown
No available information

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

01 ☐ E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: 60
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Lead levels were detected in on-site surface samples. The population potentially affected would be the children and workers that attend the center on a daily basis.

01 ☐ F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: _____ (Acres)
02 ☐ OBSERVED (DATE: 05/11/86) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Elevated levels of lead were detected in on-site samples.

01 ☐ G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Population within a three-mile radius is served by a public water supply system which obtains its water from sources outside the study area. There are no known surface water intakes located within the three-mile radius.

01 ☐ H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: _____
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

01 ☐ I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: 60
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Lead levels were detected in on-site surface samples. The population potentially affected would be the children and workers that attend the center on a daily basis.

ORIGINAL (Red)

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION
01 STATE: VA | 02 SITE NUMBER: 415

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None observed or reported

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

None observed or reported

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None observed or reported

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills, Runoff, Standing liquids, Leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

There are not on-site wastes. The exact route of contamination has not been determined.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None reported

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Surface runoff from the site is collected by storm sewers.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

Possible human exposure via the inhalation and ingestion routes.

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT III sampling on May 11, 1986.

ORIGINAL (Red)

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	415

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES	None			
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify) None		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER _____ (Specify)

05 OTHER

☒ A. BUILDINGS ON SITE

1

06 AREA OF SITE

1/2 (Acres)

07 COMMENTS

N/A

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one) N/A

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

There was no on-site disposal of wastes.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☐ NO

02 COMMENTS

The site is an active day care center. The entire area is fenced.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NUS FIT III sampling performed on May 11, 1986.

ORIGINAL (Red)

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	415

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☒	B. ☒
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. 16 (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☒ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 0

03 DISTANCE TO NEAREST DRINKING WATER WELL N/A (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
5 to 8 (ft)	unknown	5 to 8 (ft)	55,000 (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

The only known use of groundwater in the site area is for industrial purposes.

10 RECHARGE AREA		11 DISCHARGE AREA	
☒ YES ☐ NO	COMMENTS: Water table aquifer is recharged by precipitation	☐ YES ☒ NO	COMMENTS:

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Southern Branch of the Elizabeth River	☐	3,500 ft (mi)
Elizabeth River	☐	6,000 ft (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 34,859 NO. OF PERSONS	B. 107,880 NO. OF PERSONS	C. 250,948 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

500 ft (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

Unknown - urban area

04 DISTANCE TO NEAREST OFF-SITE BUILDING

500 ft (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is located in an urban area within the city of Portsmouth. The population of Portsmouth is 104,577.

ORIGINAL (Red'd)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	415

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☒ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

N/A ☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
2,700 (ft)	Unknown (ft)	Unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
5 (in)	3 (in)	0,-3 %	East	0 - 3 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10

N/A ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. 8,000 ft (mi)	B. 4,000 ft (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A _____ (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 1,000 ft (mi)	B. 500 ft (mi)	C. N/A (mi)	D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The area surrounding the site is generally flat with a slope towards the east toward the Southern Branch of the Elizabeth River.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

U.S.G.S. 7.5 Minute Series topographic map for Norfolk South Quadrangle.

United States Census Bureau, 1980.

ORIGINAL
(Red)

(Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
VA	415

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			Presently
SURFACE WATER			available
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	20	RNAL	
VEGETATION			
OTHER Wipe	8	CRL	

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
None	

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF EPA NUS FIT III
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS: EPA, NUS FIT III

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

None

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT III and EPA files.

EPA FORM 2070-13 (7-81)

ORIGINAL (Red)

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	415

II. CURRENT OWNER(S) / PARENT COMPANY (If applicable)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
Portsmouth Redevelopment Housing Authority		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
801 Crawford Street			
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	
Portsmouth / VA / 23704			

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**10 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**11 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**12 CITY / 13 STATE / 14 ZIP CODE**	

III. PREVIOUS OWNER(S) (List most recent first) / IV. REALTY OWNER(S) (If applicable, list most recent first)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	**04 SIC CODE**	**03 STREET ADDRESS** (P.O. Box, RFD #, etc.)	**04 SIC CODE**
05 CITY / 06 STATE / 07 ZIP CODE		**05 CITY / 06 STATE / 07 ZIP CODE**	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS FIT III file information

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	415

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
Portsmouth Day Care Center		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
Lincoln and Fifth Streets			

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
Portsmouth	VA	23704			

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA file information

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EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE VA | 02 SITE NUMBER 415

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ D. SPILLED MATERIAL REMOVED | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ E. CONTAMINATED SOIL REMOVED | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ F. WASTE REPACKAGED | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ G. WASTE DISPOSED ELSEWHERE | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ H. ON SITE BURIAL | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ I. IN SITU CHEMICAL TREATMENT | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ J. IN SITU BIOLOGICAL TREATMENT | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ K. IN SITU PHYSICAL TREATMENT | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ L. ENCAPSULATION | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ M. EMERGENCY WASTE TREATMENT | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ N. CUTOFF WALLS | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ P. CUTOFF TRENCHES/SUMP | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

01 ☐ Q. SUBSURFACE CUTOFF WALL | 02 DATE | 03 AGENCY
04 DESCRIPTION
None

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✓

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	415

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA file information

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
VA	415

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

None

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA File Information

ORIGINAL (Red)

ORIGINAL (Red)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE: VA	02 SITE NUMBER: 416

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

None

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA file information

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(Red)

SECTION 6

ORIGINAL

6.0 LABORATORY DATA

ORIGINAL (Red)

6.1 Sample Data Summary

GLOSSARY

Data Summary Footnotes

In the data summary which follows, data qualifier code letters are associated with these definitions:

◇ This concentration reported by laboratory, but evidence to doubt presence of compound/element (may or may not be present).

J Approximate value; detected below limit of accurate quantitation.

UF The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit.

F The associated numerical value is an estimated quantity because quality control criteria were not met. (See Quality Assurance Review for specifics as to magnitude or direction of variability or bias.)

R Quality Control indicates that data are unusable (compounds may or may not be present). Resampling and/or reanalysis is necessary for verification.

N Evidence for presence of material is presumptive (tentative identification).

H Suspected Unreliable Results: Even though data validation criteria have been met, this result may still be suspect because false positives are a frequent problem with this particular compound or method of analysis. To prove validity, corroboration with additional analytical results or supporting information would be recommended.

TDD Number F3-8612-41

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name Portsmouth Day Center

Date of Sample 6-17-86

Sample Number	Sample Description and Location	Phase	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Remarks
				Compounds Detected													
MCE199	soil #1	Sol	mg/kg	1790			[43]			[3270]	6.5		62	2860	268	[402]	
MCE200	soil #2	Sol	mg/kg	4990		8.2	[64]			[670]	9.7		54	4030	219	[433]	
MCD757	soil #3	Sol	mg/kg	4880		6.7	108			3030	10		82	4310	299	[433]	
MCD758	soil #4	Sol	mg/kg	2700			[31]			[802]	8.6		32	3080	121	[428]	
MCD759	soil #5	Sol	mg/kg	2620			[40]			[732]	8.4		67	3150	278	[275]	
MCD760	soil #6	Sol	mg/kg	3150			[48]			[1140]	10		62	3360	185	[376]	
MCD761	soil #7	Sol	mg/kg	680			[10]			[264]	[3.3]		[6.6]	1040	28	[158]	
MCD762	soil #8	Sol	mg/kg	1930			119			[734]	15		38	2450	312	[235]	
MCD763	soil #9	Sol	mg/kg	852			[16]			[522]	5.2		18	1250	65		
MCD764	soil #10	Sol	mg/kg	3090			126			[230]	15		55	5370	381	[289]	
MCD765	soil #11	Sol	mg/kg	10,000		[5.1]	[80]			[2170]	29	[5.3]	39	19900	97	6840	
MCD766	soil #12	Sol	mg/kg	6070			[103]			3580	7.9		17	2890	193	[442]	
MCD767	soil #13	Sol	mg/kg	7200			[59]			[2340]	20	[4.6]	39	15300	108	5180	
MCD768	soil #14	Sol	mg/kg	5190			[49]			[1480]	6.4		14	2250	62	[442]	

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

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TDD Number F3-8615-41

EPA Number

SAS EDA MM
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name Portsmouth Dry Cleaner

Date of Sample 6-17-86

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc	Cyanide	Percent Solids (%)	Remarks
MCF199	soil #1	SOL	mg/kg	60	0.2	[5.2]	[320]					31◇	[14]	620		98%	
MCF200	soil #2	SOL	mg/kg	58	0.4	[6.2]	[380]					27◇	[9]	172		97%	
MCD757	soil #3	SOL	mg/kg	58	0.3	[7.3]	[404]					37◇	[21]	249		97%	
MCD758	soil #4	SOL	mg/kg	44	0.2	[4.3]	[407]					25◇	[13]	89		98%	
MCD759	soil #5	SOL	mg/kg	46	0.2	[6.3]						37◇	[20]	681		97%	
MCD760	soil #6	SOL	mg/kg	54	0.1	[6.5]	[370]					30◇	[8]	188		98%	
MCD761	soil #7	SOL	mg/kg	10								25◇	[68]	35		99%	
MCD762	soil #8	SOL	mg/kg	28		[6]						28◇	[12]	212		99%	
MCD763	soil #9	SOL	mg/kg	17	0.1	[3.7]						27◇	[5.2]	62		98%	
MCD764	soil #10	SOL	mg/kg	46	0.1	[4.2]	[296]					24◇	[13]	337		98%	
MCD765	soil #11	SOL	mg/kg	435	0.2	[18]	7720			[419]◇		29◇	41	173		99%	
MCD766	soil #12	SOL	mg/kg	41	0.4	[6.2]	538					29◇	[12]	139		95%	
MCD767	soil #13	SOL	mg/kg	341		[11]	5870			[36]◇		31◇	37	302		97%	
MCD768	soil #14	SOL	mg/kg	28		[4.8]	[672]					[20]◇	[11]	59		95%	

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

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TDD Number F3-8612-41

EPA Number

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name Portsmouth Day Center

Date of Sample 6-17-86

Sample Number	Sample Description and Location	Phase	Units	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Remarks
				Compounds Detected													
MB0366	Soil #15	Sol	mg/kg	4680			[40]			[1140]	[5.1]		[8.6]	2050	29	[392]	
MB0666	Soil #16	Sol	mg/kg	4280		[5.2]	313			4140	13		51	6350	727	[731]	
MB0667	Soil #17	Sol	mg/kg	5240		6.1	428		3.5	8710	22		99	38600	1350	[828]	
MB0668	Background soil 1	Sol	mg/kg	11900		7.1	[65]			[1250]	18		17	7540	61	[1020]	
MB0669	Background soil 2	Sol	mg/kg	4300		8.6	115			[2200]	11		26	4120	255	[415]	
MB0670	Field blank	Sol	mg/kg														

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

ORIGINAL (Red)

TDD Number 13-8612-41

EPA Number

LEVEL IV/V
TARGET COMPOUNDS

☐ Organic ☒ Inorganic

Site Name Portsmouth Day Center

Date of Sample 6-17-86

Compounds Detected

Sample Number	Sample Description and Location	Phase	Units	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Tin	Vanadium	Zinc	Cyanide	Percent Solids (%)	Remarks
MC0666	Soil #15	SOL	mg/kg	17		[49]	[496]					[18]◇	[9.5]	68		94%	
MC0666	Soil #16	SOL	mg/kg	106	0.8	[9.4]	[829]			[480]◇		42◇	[21]	602		97%	
MC0667	Soil #17	SOL	mg/kg	293	1.0	[13]	[797]			[571]◇		348◇	[23]	1400		98%	
MC0668	Background soil 1	SOL	mg/kg	24		[7.2]	[734]			[551]◇		27◇	28	50		98%	
MC0669	Background soil 2	SOL	mg/kg	56	0.8	[7.4]	[543]			[469]		29◇	[12]	304		93%	
MC0670	Field blank	SOL	mg/kg									[13]				100%	

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

ORIGINAL (Red)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401

301-224-2740
FTS-922-3752

ORIGINAL (Red)

DATE : June 30, 1986

SUBJECT: Metals Determinations of Portsmouth Day Care Center
Superfund-Remedial, 6TFA03RHZZ, 860617-13 - 20, (6/20/86 - 6/25/86)

FROM : Stephen Buchanan SEB
Environmental Scientist

TO : Daniel K. Donnelly
Chief, Annapolis Laboratory

THRU : Bernard A. Sammons BAS
Acting Metal's Team Leader, Inorganic Analysis Section

Samples 860617-13 - 20 were analyzed by furnace atomic absorption spectroscopy and inductively coupled plasma optical emission spectrometry. The results are presented in the attached table.

Additional quality control data are available upon request.

Wipe samples were analyzed as received and reported in ug/L. Additional unit conversion must be taken into consideration for the amount of surface area sampled. Extract volumes were 100 milliliters.

Sample Description:

Lab No.	Description
860617-13	Portsmouth Day Care Center, swipe sample #1
-14	Portsmouth Day Care Center, swipe sample #2
-15	Portsmouth Day Care Center, swipe sample #3
-16	Portsmouth Day Care Center, swipe sample #4
-17	Portsmouth Day Care Center, swipe sample #5
-18	Portsmouth Day Care Center, swipe sample #6
-19	Portsmouth Day Care Center, swipe sample #7, Blank
-20	Portsmouth Day Care Center, swipe sample #8

SB:ad

cc: B. R. Fletcher BRF
QCO

U.S. Environmental Protection Agency, Region III, Central Regional Laboratory

Project Name: Portsmouth Day Care Center - Superfund-Remedial, 6TFA03RHZZ

Sample Number:	860617-13 ug/L	860617-14 ug/L	860617-15 ug/L	860617-16 ug/L	860617-17 ug/L	860617-18 ug/L
METALS						
Antimony	<10(108%)	<10*(108%)	<10(100%)	20(112%)	34(106%)	<10(96%)
Chromium	<25	<25	<25*	<25*	<25*(98%)	<25
Copper	<25	<25	214	189	1,380(104%)	104±2(97%)
Lead	326	102	223	249	2,130±24(93%)	100(MSA)
Tin	49(MSA)	<20*(95%)	<20(MSA)	<20(MSA)	<20(MSA)	58(103%)
Zinc	1,290	1,440	2,300	1,200	3,750	765±3(106%)

Sample Number:	860617-19 ug/L	860617-20 ug/L
METALS		
Antimony	<10(104%)	<10(100%)
Chromium	<25	<25
Copper	<25*	28±1(100%)
Lead	<10(107%)	28±1(MSA)
Tin	87(108%)	57(98%)
Zinc	434	2,140±10

MSA = Method of Standard Additions
*Analyzed in duplicate, both values below specified detection limit.

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6.2.2 Inorganic Data: Lab Case 6079

6.2.2.1 Introduction

The findings offered in this report area based on a general review of all available inorganic laboratory data, blank analysis results, matrix spike and duplicate results, calibration data, and ICP interference data.

6.2.2.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- All positive sample results for sodium are questionable.
- All positive results for tin are questionable except sample MCD667.

The aforementioned results were designated questionable because there is evidence to doubt the presence of these compounds (they may or may not be present.) Generally, these data are best used to demonstrate that substantially greater levels of environmental contamination do not exist in the above sample results.

- The actual detection limit for selenium in sample MCF 199 may be substantially higher then reported.
- Although there is no reason to suggest that any sample results are questionable, it was not possible to verify the results for arsenic, selenium, and thallium due to insufficient documentation. Similarly, it was not possible to verify that results within five times of the instrument detection limit are not artifactual.

6.2.2.3 Findings

- Field and/or laboratory blank analysis revealed the presence of sodium and tin at sufficient levels to question the aforementioned sample results.

ORIGINAL (Red)

- The matrix spike result for selenium in sample MCF199 exhibited a zero recovery.

- The laboratory did not include absorbance in the raw data for arsenic, selenium, and thallium, only final concentrations. Therefore, errors resulting from conversion to final concentration could not be ascertained. Additionally, low-level results could not be verified since field and laboratory blanks were reported in the same manner and results which are just below instrument detection limits were not provided in the raw data.

6.2.2.4 Summary

The text of this report has been formulated to address only those problem areas which affect the application of the data to the investigation. The attached quality assurance review has identified blank contamination, poor matrix spike result, and insufficient documentation as the primary areas of concern. Please see the attached Support Documentation appendix for specifics on this report.

Report prepared by [redacted] Date: September 25, 1987

"non responsive based on revised scope"

(215) 687-9510

ORIGINAL
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(Red)

SECTION 7

7.0 TOXICOLOGICAL EVALUATION

7.1 Summary

Soil samples obtained from the Portsmouth Day Care Center property revealed lead concentrations within ranges generally reported in urban areas. Two soil samples, taken near a sliding board and the swings, revealed somewhat higher lead concentrations, although levels still fell within the range typical of urban areas.

Routine exposure to lead levels reported in day care soils would not be expected to contribute significantly to levels of exposure that urban children would ordinarily be expected to receive. However, urban soils, which are enriched in lead content, can provide a significant measure of an urban child's daily lead intake.

As a group, children generally exhibit higher blood lead levels than adults, and blood lead levels of urban children typically exceed those of their non-urban counterparts. Children of the ages attending the day care center are a population at risk for lead poisoning for a number of reasons. Adverse effects associated with lead exposure range from severe central nervous system damage, nephropathy, gastrointestinal effects, and frank anemia at blood lead levels of 40 to 100 ug/dl, to subtle effects on cognitive functioning and other types of behavorial performance at blood lead levels previously thought to be "safe."

Lead concentrations reported in day care soils are not anticipated to pose more of a potential threat to center children than would other soils and dusts in their urban environment. These soils may, as is the case with all urban soils, provide one more source of lead exposure to day care children, whose overall intake of lead may already be too high. Ideally, the lead intake of children should be minimized wherever possible, due to this group's increased sensitivity to adverse effects of this toxic metal.

7.2 Support Data

7.2.1 Soil Samples

Seventeen surface soil samples taken on the Portsmouth Day Care Center property revealed lead levels ranging from 28 to 1,350 mg/kg. With the exception of zinc, reported at concentrations of 35 to 1,400 mg/kg in soil samples, all other reported metal concentrations fell within expected ranges.

Urban soils generally contain higher concentrations of certain metals, including lead and zinc. Soil lead concentrations in urban areas range from 150 to 350 mg/kg and have been reported to range upwards of 8,000 mg/kg near heavily traveled roads.[1,2] Zinc is reported in all soils at concentrations of 22 to 347 mg/kg; higher concentrations are often reported in urban areas.[3] It is apparent, therefore, that only a few samples obtained from the day care center property (namely, nos. 16 and 17, obtained from in front of a sliding board and by the swings, respectively) exhibit elevated lead and zinc levels. Sample nos. 1 and 5, located at the northwestern end of the building, also exhibited elevated zinc concentrations; all lead levels reported at this end of the property were within the ranges reported in urban areas. Two background soil samples revealed 61 and 255 mg/kg lead, and 50 and 304 mg/kg zinc.

Of the two metals noted above, lead is the more toxic and would pose the most notable potential threat to urban children who attend the day care center. The following toxicological evaluation will therefore primarily consider the potential impacts of soil lead exposure on this population.

The primary routes of exposure to the soil lead concentrations by day care children are expected to be inhalation of dusts generated from bare ground surfaces and inadvertent ingestion of lead-contaminated dirt on hands or other dust-collecting surfaces. An additional and possibly significant exposure route for some children can be pica, the compulsive, habitual consumption of non-food items such as paint chips and soil. As a group, children are more apt to have pica.

Children also represent a special population at risk for lead exposure for several reasons: Their dietary lead intake rate is five-fold greater than for adults on a body weight basis, absorption rates for lead are higher in children than in adults by at least three-fold, children consume more dust than adults, and children have a faster rate of central nervous system (CNS) development, one of the major target systems for lead toxicity.[2]

Lead concentrations reported in day care soil samples for the most part did not exceed levels reported in many urban soils and therefore would not be expected to contribute significantly to levels of exposure that day care children, who are presumably urban residents, would be expected to receive. It is important to note that urban residents (and children in particular) are inherently exposed to higher lead levels from automobile exhaust, general urban aerosol (including dust fallout from exterior paint and building demolition residues), ingestion of locally grown produce, as well as smelters and foundaries if present in the vicinity.[2] It has been estimated that adults residing in urban areas typically consume 25 to 100 ug or more of lead per day from all sources, while many urban children ingest up to 175 ug of lead per day in their food, water, and air alone.[4]

Urban soils can provide a significant additional source of lead for children, especially children of the ages attending the day care center. Significant lead exposure can arise from ingestion of urban soil or dust particles during the normal play activities of children. A child playing at a playground near a roadside might consume 20 to 200 ug of lead, while eating a single piece of candy with unwashed hands (assumes a street dust lead concentration of 1,000 to 2,000 mg/kg).[2] One such incident, therefore, has the potential of doubling a child's total daily lead intake. On the average, urban atmospheres, including fallout onto soils and street house dusts, are expected to provide an additional 91 ug of lead per day to children.[2]

As a group, urban children also exhibit higher blood lead levels (PbB) than their non-urban counterparts, as a consequence of their higher exposure levels. Blood lead levels in children up to six years of age are generally higher than those in non-occupationally exposed adults; children aged two to three years tend to have the highest levels.[2] As previously noted, children are a special population at risk with regard to lead poisoning due to their faster rate of CNS development.

Available literature on adverse effects associated with lead suggest a continuum of biological effects associated with a broad range of exposure levels. The most serious effect is severe, irreversible CNS damage manifested in terms of encephalopathic signs and symptoms such as hyperirritability, ataxia, convulsions, stupor, and coma. In children, effective PbB for producing encephalopathy or death are lower than for adults, starting at approximately 80 to 100 ug/dl.[5] Subacute health effects of lead exposure include peripheral neuropathies (reported in children with PbB as low as 40 to 60 ug/dl), nephropathy (reported at PbB as low as 70 to 80 ug/dl), gastrointestinal systems such as colic (PbB as low as 60 ug/dl), frank anemia (PbB as low as 70 ug/dl), and reduced hemoglobin synthesis (PbB as low as 40 ug/dl).[2]

Additional studies demonstrate evidence for further health effects occurring in non-overtly lead-intoxicated children at similar or lower PbB than previously noted for overt effects. These effects include peripheral nerve dysfunction, measured by slowed nerve conduction velocities, in children with PbB as low as 30 ug/dl.[2] Many other studies of CNS cognitive (IQ) effects, when considered collectively, can be interpreted as indicative of likely associations between neurophysiologic deficits and low-level lead exposures in young children with PbB ranging as low as 30 to 50 ug/dl.[2] The magnitude of average IQ deficits appears to be approximately five points at PbB of 50 to 70 ug/dl and about four points at PbB of 30 to 50 ug/dl.[2]

Certain recent studies have suggested the occurrence of small, but not unimportant, effects of lead on cognitive functioning, the ability to focus attention, appropriate social behavior, and other types of behavioral performance at PbB previously thought to be "safe," namely, 15 to 30 ug/dl.[2] Some of these studies did not control for potentially confounding variables, although lead cannot be totally ruled out as a possible etiologic factor. Another study has indicated subtle but significant hearing loss (5 to 10 decibels) in children with PbB as low as 12 ug/dl; this study may possibly provide an explanation for some of the learning disabilities that have been observed previously.[6]

Based on several of these recent studies, EPA is considering reducing the PbB it considers to be the upper limit of normal to 10 ug/dl.[7] The Centers for Disease Control (CDC) has recently redefined its definition of "excessive absorption of lead" by children from 30 ug/dl to 25 ug/dl.[8] Data obtained from the second National Health and Nutrition Examination Study (NHANES II) suggest that urban children (six months to five years) of all races have average PbB of 16.8 ug/dl; in this group, blacks have average PbB of 20.9 ug/dl.[9] Both of these blood levels exceed the level EPA is considering proposing as the upper limit of normal; the average level in black children also approaches CDC's threshold for excessive absorption. Based on the NHANES II data and recent studies of subtle effects at blood lead levels previously thought to be innocuous, it becomes clear that exposure of urban children to lead should be minimized as much as possible. It may be noted, however, that NHANES II data also demonstrate that blood lead levels in the United States have declined significantly over the term of the study (five years), possibly due to the gradual elimination of leaded gasoline.[9]

While it is not anticipated that lead levels in most of the soil samples obtained from the Portsmouth Day Care Center will differ significantly from soil lead levels that center children would ordinarily be exposed to in their urban environments, it is nevertheless clear that urban soils add notably to the daily lead intake of children of the ages attending the center. In this regard, the two highest reported lead levels (727 and 1,350 mg/kg, from the sliding board and swing areas) may warrant separate consideration. Several authors have attempted to correlate soil lead content to blood lead levels of urban children, and EPA has estimated that an increase in PbB of about 2 ug/dl per 1,000 mg/kg of lead in soil may occur.[2] This estimate is based on a study by Stark, et al. (1982) and is considered to represent a reasonable median estimate.[10]

If a worst-case assumption, which considers a day care child's sole exposure to soil on the property to come from the highest area of lead contamination (i.e. by the swings), is made, an increase in PbB of about 2.6 ug/dl might be expected to result. It must be emphasized that it is highly unlikely that a child would receive 100 percent of his anticipated soil lead dose from the soil near the swings. Nevertheless, excessive exposure to soil in this area may provide a somewhat higher daily intake of lead than would normally be assimilated by an urban child, and as previously noted, lead intake by urban children should be minimized wherever possible. It is not likely that routine exposure to soil in this area would, in itself, pose a potential threat. Rather, the lead content of soil in this area may be only one of many potential sources of lead for day care children, whose overall intake of lead may already be too high. Blood lead levels of children attending the day care center would be essential in providing detailed estimates of risk. A screening study of blood lead levels in Portsmouth area children has been performed by the Health Department; however, results were not available for this report.

7.2.2 Wipe Samples

Seven wipe samples (including one background) were obtained from various exterior surfaces of the Portsmouth Day Care Center building in an attempt to determine the metal content of any dusts found on these surfaces. Lead was measured in all wipe samples, including the background samples. Wipe sample results are included in section 6. Caution must be exercised when interpreting these results, which are reported in ug/l of lead. These results do not indicate the actual concentration of lead present in dust on the sampled surfaces, but rather they represent the concentration of lead in the extract prepared by the analytical laboratory. Thus, the concentration of lead present on a weight basis, which would be required to provide a quantitative assessment of risk for day care children, cannot be ascertained from available data. As noted in the previous section, however, lead-contaminated dusts on surfaces are significant sources of lead for children of the ages attending the center.

A valid comparison among wipe sample results also cannot be made for a number of reasons: Removal efficiencies for surface dusts can vary significantly with the type of surface being sampled as well as personal variation in sampling technique; the area of each sample is unknown; the lead content of any paint that may be present on each surface is unknown; and the amount of dust present on a surface at a given time may be influenced by several factors such as compass direction, distance from the street, traffic volume, and prevailing wind patterns.[11] Wipe sample results are best used, therefore, to qualitatively confirm the presence of lead in dusts present on surfaces of the building. Whether the lead content of these dusts are typical of those found in urban areas cannot be determined with available information.

Prepared by: _____ Date: September 25, 1987
Elizabeth Quinn, Toxicologist

Site Name: Portsmouth Day Care Center
TDD No.: F3-8612-41

LIST OF SOURCES

1. Allaway, W.H. 1968. Agronomic controls over the environmental cycling of trace elements. Adv. Agron. 20:235-274.

2. United States Environmental Protection Agency. 1984. Ambient Air Quality Criteria for Lead. EACO, Research Triangle Park, NC. Review Draft.

3. John, M.K., et al. 1976. Effect of a smelter complex on the regional distribution of cadmium, lead, and zinc in letters and soil horizons. Arch. Environ. Contam. Toxicol. 4(4):456-467.

4. Boeckz, R.L. 1986. Lead poisoning in children. Analyt. Chem. 274A. February.

5. National Academy of Sciences. 1972. Lead: Airborne lead in perspective. Washington, D.C., National Academy of Sciences. (Biology effects of atmospheric pollutants.)

6. Otto, D.A. 1986. Cited in Science News, Vol. 130, No. 25-26, p. 391.

7. Raloff, J. 1986. Excess lead: Its evolving definition. Science News, Vol. 130, No. 21, p. 333.

8. Centers for Disease Control. "Preventing Lead Poisoning in Young Children"; U.S. DHHS, PHS: Atlanta, 1985.

9. Annest, J.L, et al. 1982. Blood lead levels for persons 6 months - 74 years of age: United States, 1976-80. Hyattsville, MD: (U.S. Department of Health and Human Services. (Advance data from vital and health statistics of the National Center for Health Statistics: no. 79.)).

10. Stark, A.D., et al. 1982. The relationship of environmental lead to blood-lead levels in children. Environ. Res. 27: 372-383.

11. Chavalitnitikul, K., and L. Levin. 1984. A laboratory evaluation of wipe testing based on lead oxide surface contamination. J. Am. Indus. Hygiene Assoc. 45: 31-317.

ORIGINAL
(Red)

APPENDIX A

ORIGINAL (Red)

FIT ZONE I CONTRACT
CONTRACT NO. 68-01-7346
TECHNICAL DIRECTIVE DOCUMENT (TDD)

1.A. COST CENTER: Region III

1.B. ACCOUNT NO.: S575VA11SI

2. NO.: F3-8612-41

2.A.: [X] NEW ASSIGNMENT [ ] AMENDMENT

3.A. PRIORITY: [ ] HIGH [X] MEDIUM [ ] LOW

4.A. ESTIMATE OF TECHNICAL HOURS: 150

5.A. SSID NO.:

5.B. EPA SITE NAME: Portsmouth Day Care Center

6. DESIRED REPORT FORM: [X] FORMAL REPORT [ ] FORMAL BRIEFING [ ] LETTER REPORT [ ] OTHER (SPECIFY):

3.B. KEY EPA CONTACT: NAME: D. Ostrauskas PHONE: 597-6488

4.B. ESTIMATE OF SUBCONTRACT COST:

5.C. CITY/COUNTY/STATE: Portsmouth Portsmouth, VA.

7.A. START DATE: 12/86

7.B. ESTIMATED COMPLETION DATE: 01/31/87

8. TYPE OF ACTIVITY:
[ ] PA [X] SI [ ] ESI [ ] HRS SUPPORT [ ] QA SUPPORT [ ] SPECIAL STUDIES
[ ] ENFORCEMENT SUPPORT [ ] TRAINING [ ] EQUIPMENT MAINTENANCE
[ ] GENERAL TECHNICAL ASSISTANCE [ ] PROGRAM MANAGEMENT

9. GENERAL TASK DESCRIPTION:
Preparation of site inspection report for this subject site.

10. SPECIFIC ELEMENTS:
1.) Review background information.
2.) Contact state and local agencies for relevant information.
3.) Review information obtained under TDD-F3-8606-01.
4.) Also review file information obtained under TDD-F3-8212-23 and F3-8405-19.
5.) Perform tox evaluation of the QA'd lab data.
6.) Prepare and submit site inspection report.
7.) All work on this project to be performed according to:WP-SI-1,Rev.1.

[ ] ADDITIONAL SCOPE ATTACHED

11. INTERIM DEADLINES:

12. COMMENTS: State Code 051 County Code 740

13. AUTHORIZING: [X] RPO [ ] DPO [ ] PO — Harold G Byrn (SIGNATURE)

14. DATE: 12/19/86

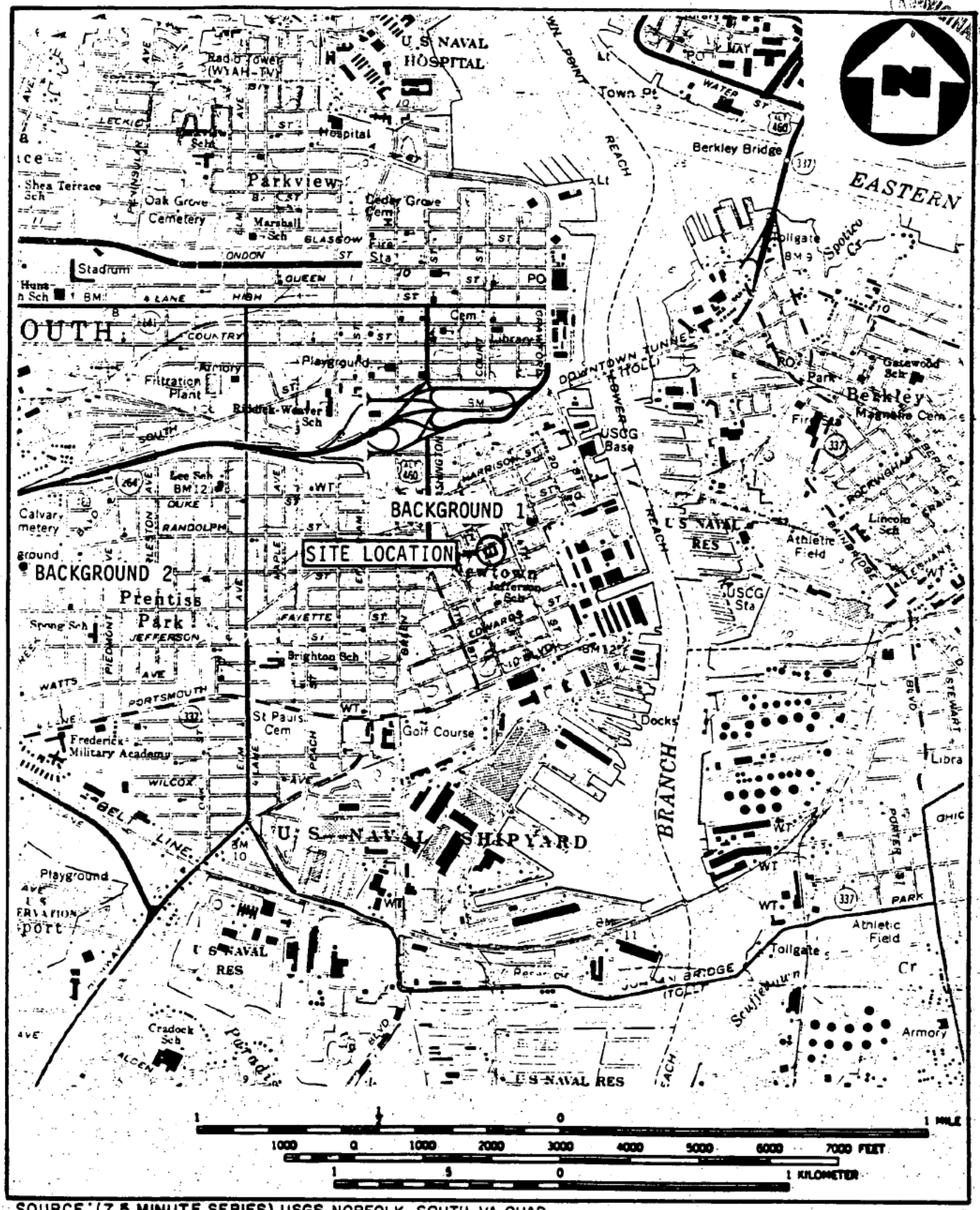
15. RECEIVED BY: [X] ACCEPTED [ ] ACCEPTED WITH EXCEPTIONS (ATTACH) [ ] REJECTED — "Non-Responsive-Based on Revised Scope" (CONTRACTOR FITOM SIGNATURE)

16. DATE: 12.29.86

SHEET 1 WHITE-FITOM COPY
SHEET 2 GREEN-PROJECT OFFICER'S COPY (WASHINGTON D.C.)
SHEET 3 CANARY-RPO COPY
SHEET 4 PINK-ZPM COPY
SHEET 5 GOLDENROD-CONTRACTING OFFICER'S COPY (WASHINGTON D.C.)

APPENDIX B

ORIGINAL



SOURCE: (7.5 MINUTE SERIES) USGS NORFOLK SOUTH, VA. QUAD.

SITE LOCATION MAP
PORTSMOUTH DAY CARE CENTER

SCALE 1:24000

FIGURE 1

NUS CORPORATION
A Halliburton Company

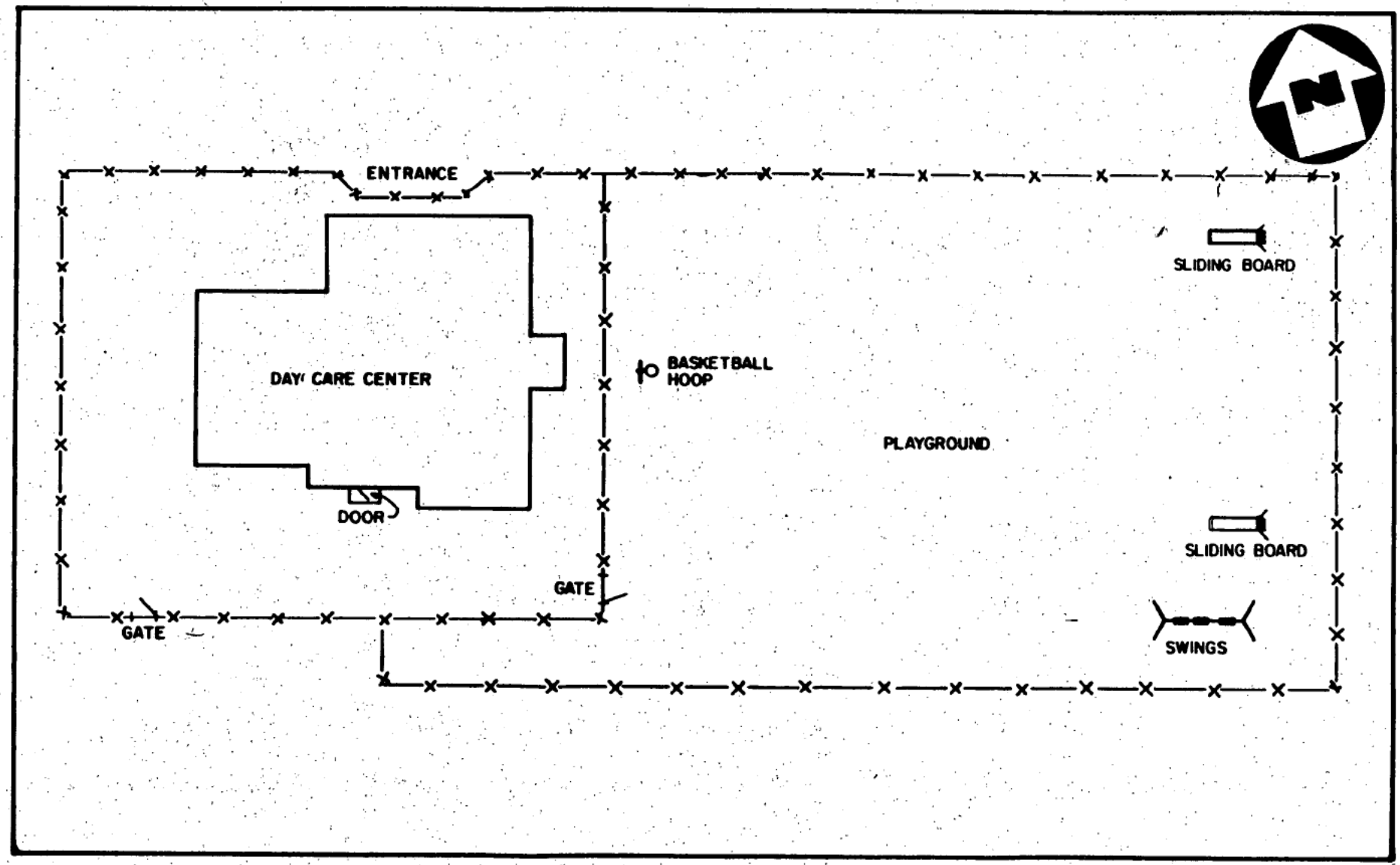


FIGURE – 2

SITE SKETCH
PORTSMOUTH DAY CARE CENTER
(NO SCALE)

NUS CORPORATION
A Halliburton Company

ORIGINAL (RED)

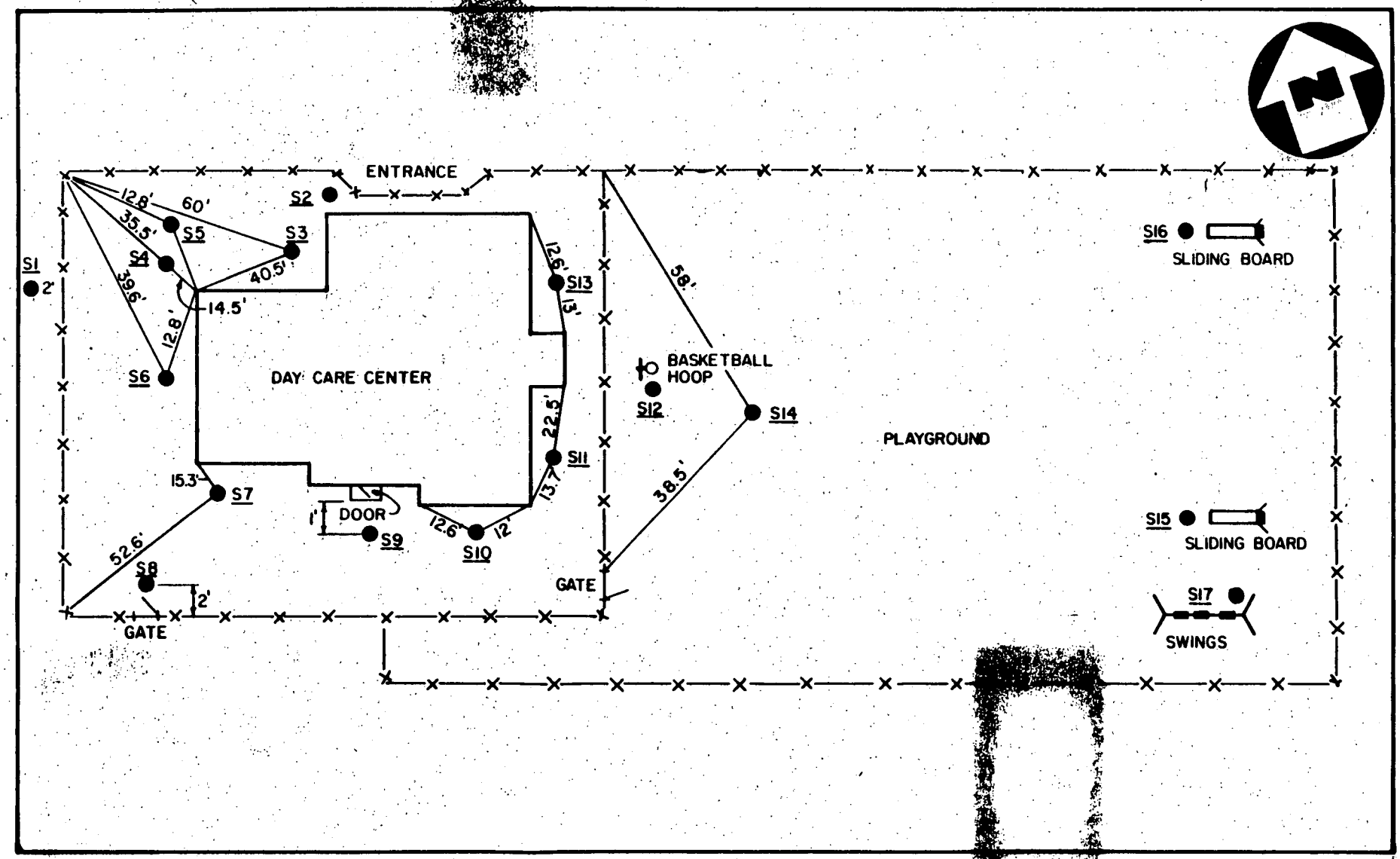


FIGURE -3

SAMPLE LOCATION MAP
PORTSMOUTH DAY CARE CENTER
(NO SCALE)

NUS CORPORATION
A Halliburton Company

ORIGINAL (Red)

APPENDIX C

PROJECT NAME: Portsmouth Gay Center
TDD NO: F3-8606-01

EPA SITE NO.:
REGION: III

ORIGINAL

QUALITY ASSURANCE REVIEW OF INORGANIC ANALYTICAL DATA PACKAGE

Case No.: 6079
Contract No.: 68-01-7068
Contract Laboratory: RMA Laboratory
Applicable IFB No.: WA84-J092
Reviewer: "non responsive based on revised scope"
Review Date:

Applicable Sample No's.:
MCF199, MCF200, MCD757, MCD75
MCD759, MCD760, MCD761, MCD
MCD763, MCD764, MCD765,
MCD766, MCD767, MCD768, MCD769
MCD366, MCD666, MCD667, MCD668,
MCD669, and MCD670.

The inorganic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following tables:

Reviewer's Evaluation*	Fraction			
	TASK I ICP or AA METALS	TASK II FURNACE AA METALS	TASK II COLD VAPOR AA MERCURY	TASK III CYANIDE
Acceptable			✓	
Acceptable with exception(s)	✓1,	✓2, 3,		N/R
Questionable				
Unacceptable				

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

≠● DATA COMPLETENESS
≠● BLANK ANALYSIS RESULTS
● MATRIX SPIKE RESULTS
≠● DUPLICATE ANALYSIS RESULTS
○ STANDARD ADDITIONS RESULTS
≠◒ QUANTITATIVE CALCULATIONS
≠● INITIAL CALIBRATION VERIFICATION
≠● CONTINUING CALIBRATION VERIFICATION
≠● INTERFERENCE QC RESULTS
≠● DETECTION LIMITS RESULTS
≠● INSTRUMENT SENSITIVITY REPORTS

Data review forms are attached for each of the review items indicated above.
≠ No errors noted, no form attached.
◒ Spot Check performed.
N/R - Not Required.

Comments:
1) Please see blank analysis results (contamination)
2) Please see matrix spike recovery (detection limit)
3) Please see text (insufficient documentation).

DATA EVALUATION SCORE CATEGORIES

ORIGINAL
ORIGINAL
(Red)

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

DATA COMPLETENESS	CONC./MATRIX	60/61													
	TRAFFIC REPORT # MC	F199	F200	D757	D758	D759	D760	D761	D762	D763	D764	D765	D766	D767	D
	LAB I.D. #														
FIELD QC	BLANK														
	DUPLICATE	✓													
	SPIKE	✓													
TASK I: ICAP OR AA: METALS	RAW DATA	✓													
	TAB. RESULTS	✓													
	TAB. D.L.'s	✓													
	QA FORM	✓													
	ICAR INTER. QC	✓													
	INSTR. SENS.	✓													
TASK II: FURNACE AA: METALS	RAW DATA	✓													
	TAB. RESULTS	✓													
	TAB. D.L.'s	✓													
	QA FORM	✓													
	INSTR. SENS.	✓													
TASK II: COLD VAPOR AA: MERCURY	RAW DATA	✓													
	TAB. RESULTS	✓													
	TAB. D.L.'s	✓													
	QA FORM	✓													
	INSTR. SENS.	✓													
TASK III: CYANIDE	RAW DATA	✓													
	TAB. RESULTS	✓													
	TAB. D.L.'s	✓													
	QA FORM.	✓													
	INSTR. SENS.	✓													
OTHER (SPECIFY):	RAW DATA														
	TAB. RESULTS														
	TAB. D.L.'s														
	QA FORM														
	INSTR. SENS.														
OTHER (SPECIFY):	RAW DATA														
	TAB. RUSULTS														
	TAB. D.L.'s														
	QA FORM														
	INSTR. SENS.														

COMMENTS:

DATA COMPLETENESS	CONC./ MATRIX	lo/lo												
	TRAFFIC REPORT # ML	D366	D666	D667	D668	D669	D670							
	LAB I.D. #													
FIELD QC	BLANK						✓							
	DUPLICATE													
	SPIKE													
TASK I: ICAP OR AA: METALS	RAW DATA	✓												
	TAB. RESULTS	✓												
	TAB. D.L.'s	✓												
	QA FORM	✓												
	ICAP INTER. QC	✓												
	INSTR. SENS.	✓												
TASK II: FURNACE AA: METALS	RAW DATA	✓												
	TAB. RESULTS	✓												
	TAB. D.L.'s	✓												
	QA FORM	✓												
	INSTR. SENS.	✓												
TASK II: COLD VAPOR AA: MERCURY	RAW DATA	✓												
	TAB. RESULTS	✓												
	TAB. D.L.'s	✓												
	QA FORM	✓												
	INSTR. SENS.	✓												
TASK III: CYANIDE	RAW DATA	✓												
	TAB. RESULTS	✓												
	TAB. D.L.'s	✓												
	QA FORM.	✓												
	INSTR. SENS.	✓												
OTHER (SPECIFY):	RAW DATA													
	TAB. RESULTS													
	TAB. D.L.'s													
	QA FORM													
	INSTR. SENS.													
OTHER (SPECIFY):	RAW DATA													
	TAB. RUSULTS													
	TAB. D.L.'s													
	QA FORM													
	INSTR. SENS.													

COMMENTS: _____

BLANK ANALYSIS RESULTS

TASK	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION)
all	laboratory blank low/solid			prep. blank	RMA laboratory	Calcium (29.4 mg/kg/5000) Iron (17.3 mg/kg/) Potassium (48.2 mg/kg/5000) Sodium (298 mg/kg/5000) Tin (16.4 mg/kg/)
all	field blank low/solid			MC0670	NUS Corporation	Calcium (31.5 mg/kg/5000) 2 Magnesium (11.4 mg/kg/) L Potassium (18.4 mg/kg/5000) 2 Sodium (35 mg/kg/5000) 2 Tin (13 mg/kg/) 1

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FOR SAMPLE ANALYTICAL DATA SUMMARY.

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM RAW DATA

Form V

000239

Q.C. Report No. 56071

SPIKE SAMPLE RECOVERY

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 6-20-86

CASE NO. 6079/2328C
EPA Sample No. MCF199
Lab Sample ID No. -
Units mg/kg

MATRIX SOIL

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R[1]
Metals:					
1. ALUMINUM	75-125	1870	1760	NR	
2. ANTIMONY	75-125	213	13U	250	85
3. ARSENIC	75-125	22	5U	20	110
4. BARIUM	75-125	901	[42]	1000	86
5. BERYLLIUM	75-125	23	0.5U	25	92
6. CADMIUM	75-125	26	2.5U	25	104
7. CALCIUM	75-125	[2230]	[2220]	NR	
8. CHROMIUM	75-125	99	6.4	100	93
9. COBALT	75-125	242	3.5U	250	97
10. COPPER	75-125	189	60	125	103
11. IRON	75-125	3840	2800	NR	
12. LEAD	75-125	513	262	250	100
13. MAGNESIUM	75-125	[369]	[394]	NR	
14. MANGANESE	75-125	300	58	250	97
15. MERCURY	75-125	0.6	~~0.1~~ 0.2	0.5	80
16. NICKEL	75-125	244	[5.1]	250	96
17. POTASSIUM	75-125	[413]	[314]	NR	
18. SELENIUM	75-125	2.5U	2.5U	5	0
19. SILVER	75-125	21	1.5U	25	84
20. SODIUM	75-125	327U	327U	NR	
21. THALLIUM	75-125	24	5U	25	96
22. TIN	75-125	270	30	250	96
23. VANADIUM	75-125	266	[14]	250	101
24. ZINC	75-125	878	608	250	108
Other:					
Cyanide	75-125				

[1] %R = [(SSR - SR)/SA] x 100
"R"- out of control

Comments: The detection limit for Selenium in sample MCF199 may be higher than reported.

ORIGINAL (Red)

00030

Form VI

Q.C. Report No. 56071

DUPLICATES

ORIGINAL (Red)

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 6-20-86

CASE NO. 6079/2328C
EPA Sample No. MCF199D
Lab Sample ID No. -
Units mg/kg

Matrix SOIL

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. ALUMINUM		1760	1870	6.1
2. ANTIMONY		13U	13U	NC
3. ARSENIC		5U	5U	NC
4. BARIUM		[42]	[48]	NC
5. BERYLLIUM		0.5U	0.5U	NC
6. CADMIUM		2.5U	2.5U	NC
7. CALCIUM		[2220]	[2470]	NC
8. CHROMIUM		6.4	7.3	13
9. COBALT		3.5U	3.5U	NC
10. COPPER		60	64	6.5
11. IRON		2800	2590	7.8
12. LEAD		262	260	0.77
13. MAGNESIUM		[394]	[360]	NC
14. MANGANESE		58	59	1.7
15. MERCURY		0.2	0.2	0
16. NICKEL		[5.1]	[4.8]	NC
17. POTASSIUM		[314]	[364]	NC
18. SELENIUM		2.5U	2.5U	NC
19. SILVER		1.5U	1.5U	NC
20. SODIUM		327U	327U	NC
21. THALLIUM		5U	5U	NC
22. TIN		30	28	6.9
23. VANADIUM		[14]	[15]	NC
24. ZINC		608	571	6.3
Other:				
% Solids		98	97	1.0
Cyanide				

X Out of Control

[1] To be added at a later date.

[2] RPD = [|S-D|/((S+D)/2)] x 100

NC - Non calculable RPD due to value(s) less than CRDL

ALL RECOVERIES ARE ACCEPTABLE

Initial Calibration Verification and Continuing Calibration Verification

ORIGINAL (Red)

Documentation indicates calibrations were performed and checked every ten samples: Yes ✓

Exceptions: _____

Calibrations and verifications were all within the control limits specified in USA84-J092 : Yes ✓

Outliers are listed below:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments

Interference QC Results

Documentation indicates interference QC samples were run before and after every ten samples: Yes ✓

Exceptions: _____

Interference QC results were all within the control limits specified in USA84-J092 : Yes ✓

Exceptions:

Parameter	Acceptable Range (%)	Calibration Identifier	% of True Value	Comments
				Please See The next page for ICP interference check Information

Please See The next page

Form IV

Q.C. Report No. 56071

ORIGINAL (Red) 00028 ORIGINAL (Red)

ICP INTERFERENCE CHECK SAMPLE

LAB NAME ROCKY MOUNTAIN ANALYTICAL

DATE 6-20-86

CASE NO 6079/2328C
Check Sample I.D. INT CHK
Check Sample Source EMSL-LV
Units mg/L

Compound	Control Limits[1] Mean	Std. Dev.	True[2]	Initial Observed	%R	Final Observed	%R
Metals:							
1. ALUMINUM			503	422	84	431	86
2. ANTIMONY				0.026U		0.026U	
3. ARSENIC				0.029U		0.029U	
4. BARIUM			0.47	0.43	91	0.43	91
5. BERYLLIUM			0.46	0.47	102	0.43	93
6. CADMIUM			0.96	0.94	98	1	104
7. CALCIUM			499	519	104	515	103
8. CHROMIUM			0.98	0.9	92	0.89	91
9. COBALT			0.48	0.48	100	0.47	98
10. COPPER			0.51	0.5	98	0.49	96
11. IRON			198	186	94	183	92
12. LEAD	4.7	0.14	4.6	4.7	100	4.8	102
13. MAGNESIUM			497	525	106	541	109
14. MANGANESE			0.52	0.54	104	0.53	102
15. MERCURY							
16. NICKEL			0.91	0.89	98	0.87	96
17. POTASSIUM				0.54U		0.54U	
18. SELENIUM							
19. SILVER			0.99	0.96	97	1	101
20. SODIUM				5.4		7.1	
21. THALLIUM							
22. TIN				0.016U		0.016U	
23. VANADIUM			0.47	0.48	102	0.47	100
24. ZINC			0.95	0.9	95	0.92	97
Other:							

[1] Mean value based on n = 37.

[2] True value of EPA ICP Interference Check Sample or contractor standard.

ALL RECOVERIES ARE ACCEPTABLE

ORIGINAL (Red)

Detection Limits Results

Detection limits were reported for all samples analyzed: Yes ✓ No ___

Exceptions: _____

Detection limits were less than or equal to the required detection limits specified in WA84-5092. Yes ✓ No ___

Exceptions: _____

Instrument Sensitivity Reports

Instrument sensitivity reports were documented for all parameters:

Yes ✓ No ___

Comments: _____

Other Remarks Concerning this Case:

ORIGINAL
(Red)

APPENDIX D

ORIGINAL (Red) ORIGINAL (Red)

00003

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCF199

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	1790	P	13.	MAGNESIUM	[402]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	60	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.2	CV
4.	BARIUM	[43]	P	16.	NICKEL	[5.2]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	[320]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[2270]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	6.5	P	20.	SODIUM	333U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	62	P	22.	TIN	31	P
11.	IRON	2860	P	23.	VANADIUM	[14]	P
12.	LEAD	268	P	24.	ZINC	620	P

Cyanide NR Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red)

00004

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCF200

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	4990	P	13.	MAGNESIUM	[433]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	58	P
3.	ARSENIC	8.2	F	15.	MERCURY	0.4	CV
4.	BARIUM	[64]	P	16.	NICKEL	[6.2]	P
5.	BERYLLIUM	0.52U	P	17.	POTASSIUM	[380]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[1670]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	9.7	P	20.	SODIUM	337U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.2U	F
10.	COPPER	54	P	22.	TIN	27	P
11.	IRON	4030	P	23.	VANADIUM	[19]	P
12.	LEAD	219	P	24.	ZINC	172	P

Cyanide NR

Percent Solids (%) 97

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JAL

ORIGINAL (Red)

00005

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD757

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	4880	P	13.	MAGNESIUM	[433]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	58	P
3.	ARSENIC	6.7	F	15.	MERCURY	0.3	CV
4.	BARIUM	108	P	16.	NICKEL	[7.3]	P
5.	BERYLLIUM	0.52U	P	17.	POTASSIUM	[404]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	3030	P	19.	SILVER	1.5U	P
8.	CHROMIUM	10	P	20.	SODIUM	337U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.2U	F
10.	COPPER	82	P	22.	TIN	37	P
11.	IRON	4310	P	23.	VANADIUM	[21]	P
12.	LEAD	299	P	24.	ZINC	249	P

Cyanide NR Percent Solids (%) 97

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JMI

ORIGINAL (Red)

00006

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD758

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	2700	P	13.	MAGNESIUM	[428]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	44	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.2	CV
4.	BARIUM	[31]	P	16.	NICKEL	[4.3]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	[407]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[802]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	8.6	P	20.	SODIUM	333U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	32	P	22.	TIN	25	P
11.	IRON	3080	P	23.	VANADIUM	[13]	P
12.	LEAD	121	P	24.	ZINC	89	P

Cyanide NR

Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

00007

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD759

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	2620	P	13.	MAGNESIUM	[275]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	46	P
3.	ARSENIC	5.2U	F	15.	MERCURY	0.2	CV
4.	BARIUM	[40]	P	16.	NICKEL	[6.3]	P
5.	BERYLLIUM	0.52U	P	17.	POTASSIUM	279U	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[732]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	8.4	P	20.	SODIUM	337U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.2U	F
10.	COPPER	67	P	22.	TIN	37	P
11.	IRON	3150	P	23.	VANADIUM	[20]	P
12.	LEAD	278	P	24.	ZINC	681	P

Cyanide NR Percent Solids (%) 97

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

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00008

EPA Sample No.
MCD760

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	3150	P	13.	MAGNESIUM	[376]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	54	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.1	CV
4.	BARIUM	[48]	P	16.	NICKEL	[6.5]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	[370]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[1140]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	10	P	20.	SODIUM	333U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	62	P	22.	TIN	30	P
11.	IRON	3360	P	23.	VANADIUM	[18]	P
12.	LEAD	185	P	24.	ZINC	188	P

Cyanide NR

Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager JML

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00009

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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD761

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	680	P	13.	MAGNESIUM	[158]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	10	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	[10]	P	16.	NICKEL	3U	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	274U	P
6.	CADMIUM	2.5U	P	18.	SELENIUM	2.5U	F R
7.	CALCIUM	[264]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	[3.3]	P	20.	SODIUM	330U	P
9.	COBALT	3.5U	P	21.	THALLIUM	5.1U	F
10.	COPPER	[6.6]	P	22.	TIN	25	P
11.	IRON	1040	P	23.	VANADIUM	[6.8]	P
12.	LEAD	28	P	24.	ZINC	35	P

Cyanide NR

Percent Solids (%) 99

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

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Form I

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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD762

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	1930	P	13.	MAGNESIUM	[235]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	28	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	119	P	16.	NICKEL	[6]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	274U	P
6.	CADMIUM	2.5U	P	18.	SELENIUM	2.5U	F R
7.	CALCIUM	[734]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	15	P	20.	SODIUM	330U	P
9.	COBALT	3.5U	P	21.	THALLIUM	5.1U	F
10.	COPPER	38	P	22.	TIN	28	P
11.	IRON	2450	P	23.	VANADIUM	[12]	P
12.	LEAD	312	P	24.	ZINC	212	P

Cyanide NR

Percent Solids (%) 99

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red)

ORIGINAL (Red)

00011

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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD763

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	852	P	13.	MAGNESIUM	151U	P
2.	ANTIMONY	13U	P	14.	MANGANESE	17	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.1	CV
4.	BARIUM	[16]	P	16.	NICKEL	[3.7]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	277U	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[522]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	5.2	P	20.	SODIUM	333U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	18	P	22.	TIN	27	P
11.	IRON	1250	P	23.	VANADIUM	[5.2]	P
12.	LEAD	65	P	24.	ZINC	62	P

Cyanide NR

Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager TML

ORIGINAL (Red)

00012

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD764

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium ____
Matrix: Water ____ Soil X Sludge ____ Other ____

mg/kg dry weight

1.	ALUMINUM	3090	P	13.	MAGNESIUM	[289]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	46	P
3.	ARSENIC	5.1U	F	15.	MERCURY	0.1	CV
4.	BARIUM	126	P	16.	NICKEL	[4.2]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	[296]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[1230]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	15	P	20.	SODIUM	333U	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	55	P	22.	TIN	24	P
11.	IRON	5370	P	23.	VANADIUM	[13]	P
12.	LEAD	381	P	24.	ZINC	337	P

Cyanide NR

Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: ____

Lab Manager JM

ORIGINAL (Red)

00013

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD765

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	10000	P	13.	MAGNESIUM	6840	P
2.	ANTIMONY	13U	P	14.	MANGANESE	435	P
3.	ARSENIC	[5.1]	F	15.	MERCURY	0.2	CV
4.	BARIUM	[80]	P	16.	NICKEL	[18]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	7720	P
6.	CADMIUM	2.5U	P	18.	SELENIUM	2.5U	F R
7.	CALCIUM	[2170]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	29	P	20.	SODIUM	[419]	P
9.	COBALT	[5.3]	P	21.	THALLIUM	5.1U	F
10.	COPPER	39	P	22.	TIN	29	P
11.	IRON	19900	P	23.	VANADIUM	41	P
12.	LEAD	97	P	24.	ZINC	173	P

Cyanide NR

Percent Solids (%) 99

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager TML

ORIGINAL (Red)

Form I

00014

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Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD766

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	6070	P	13.	MAGNESIUM	[442]	P
2.	ANTIMONY	14U	P	14.	MANGANESE	41	P
3.	ARSENIC	5.3U	F	15.	MERCURY	0.4	CV
4.	BARIUM	[103]	P	16.	NICKEL	[6.2]	P
5.	BERYLLIUM	0.53U	P	17.	POTASSIUM	[538]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	3560	P	19.	SILVER	1.6U	P
8.	CHROMIUM	7.9	P	20.	SODIUM	344U	P
9.	COBALT	3.7U	P	21.	THALLIUM	5.3U	F
10.	COPPER	17	P	22.	TIN	29	P
11.	IRON	2890	P	23.	VANADIUM	[12]	P
12.	LEAD	193	P	24.	ZINC	139	P

Cyanide NR Percent Solids (%) 95

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager TML

ORIGINAL (Red)

00015

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD767

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	7200	P	13.	MAGNESIUM	5180	P
2.	ANTIMONY	13U	P	14.	MANGANESE	341	P
3.	ARSENIC	5.2U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	[59]	P	16.	NICKEL	[11]	P
5.	BERYLLIUM	0.52U	P	17.	POTASSIUM	5870	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[2340]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	20	P	20.	SODIUM	[366]	P
9.	COBALT	[4.6]	P	21.	THALLIUM	5.2U	F
10.	COPPER	39	P	22.	TIN	31	P
11.	IRON	15300	P	23.	VANADIUM	37	P
12.	LEAD	108	P	24.	ZINC	302	P

Cyanide NR Percent Solids (%) 97

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red)

00016

Form I

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Sample Management Office
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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD768

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C

QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium _____
Matrix: Water _____ Soil X Sludge _____ Other _____

mg/kg dry weight

1.	ALUMINUM	5190	P	13.	MAGNESIUM	[442]	P
2.	ANTIMONY	14U	P	14.	MANGANESE	28	P
3.	ARSENIC	5.3U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	[49]	P	16.	NICKEL	[4.8]	P
5.	BERYLLIUM	0.53U	P	17.	POTASSIUM	[672]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[1480]	P	19.	SILVER	1.6U	P
8.	CHROMIUM	6.4	P	20.	SODIUM	344U	P
9.	COBALT	3.7U	P	21.	THALLIUM	5.3U	F
10.	COPPER	14	P	22.	TIN	[20]	P
11.	IRON	2250	P	23.	VANADIUM	[11]	P
12.	LEAD	62	P	24.	ZINC	59	P

Cyanide NR

Percent Solids (%) 95

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager JMV

ORIGINAL (Red)

00017

Form I

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Sample Management Office
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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD366

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	4680	P	13.	MAGNESIUM	[392]	P
2.	ANTIMONY	14U	P	14.	MANGANESE	17	P
3.	ARSENIC	5.3U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	[40]	P	16.	NICKEL	[4.9]	P
5.	BERYLLIUM	0.53U	P	17.	POTASSIUM	[496]	P
6.	CADMIUM	2.7U	P	18.	SELENIUM	2.7U	F R
7.	CALCIUM	[1140]	P	19.	SILVER	1.6U	P
8.	CHROMIUM	[5.1]	P	20.	SODIUM	347U	P
9.	COBALT	3.7U	P	21.	THALLIUM	5.3U	F
10.	COPPER	[8.6]	P	22.	TIN	[18]	P
11.	IRON	2050	P	23.	VANADIUM	[9.5]	P
12.	LEAD	29	P	24.	ZINC	68	P

Cyanide NR Percent Solids (%) 94

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red)

Form I

00018

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD666

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	6280	P	13.	MAGNESIUM	[731]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	106	P
3.	ARSENIC	[5.2]	F	15.	MERCURY	0.8	CV
4.	BARIUM	313	P	16.	NICKEL	[9.4]	P
5.	BERYLLIUM	0.52U	P	17.	POTASSIUM	[829]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	4140	P	19.	SILVER	1.5U	P
8.	CHROMIUM	13	P	20.	SODIUM	[480]	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.2U	F
10.	COPPER	51	P	22.	TIN	42	P
11.	IRON	6350	P	23.	VANADIUM	[21]	P
12.	LEAD	727	P	24.	ZINC	602	P

Cyanide NR

Percent Solids (%) 97

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red)

00013

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD667

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	5240	P	13.	MAGNESIUM	[828]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	293	P
3.	ARSENIC	6.1	F	15.	MERCURY	1.0	CV
4.	BARIUM	428	P	16.	NICKEL	[13]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	[797]	P
6.	CADMIUM	3.5	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	8710	P	19.	SILVER	1.5U	P
8.	CHROMIUM	22	P	20.	SODIUM	[571]	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	99	P	22.	TIN	348	P
11.	IRON	38600	P	23.	VANADIUM	[23]	P
12.	LEAD	1350	P	24.	ZINC	1400	P

Cyanide NR Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red) ORIGINAL

00020

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD668

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	11900	P	13.	MAGNESIUM	[1020]	P
2.	ANTIMONY	13U	P	14.	MANGANESE	24	P
3.	ARSENIC	7.1	F	15.	MERCURY	0.1U	CV
4.	BARIUM	[65]	P	16.	NICKEL	[7.2]	P
5.	BERYLLIUM	0.51U	P	17.	POTASSIUM	[734]	P
6.	CADMIUM	2.6U	P	18.	SELENIUM	2.6U	F R
7.	CALCIUM	[1290]	P	19.	SILVER	1.5U	P
8.	CHROMIUM	18	P	20.	SODIUM	[551]	P
9.	COBALT	3.6U	P	21.	THALLIUM	5.1U	F
10.	COPPER	17	P	22.	TIN	27	P
11.	IRON	7540	P	23.	VANADIUM	28	P
12.	LEAD	61	P	24.	ZINC	50	P

Cyanide NR Percent Solids (%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JMC

ORIGINAL (Red)

00021

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
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703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD669

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	4300	P	13.	MAGNESIUM	[415]	P
2.	ANTIMONY	14U	P	14.	MANGANESE	56	P
3.	ARSENIC	8.6	F	15.	MERCURY	0.8	CV
4.	BARIUM	115	P	16.	NICKEL	[7.4]	P
5.	BERYLLIUM	0.54U	P	17.	POTASSIUM	[543]	P
6.	CADMIUM	2.7U	P	18.	SELENIUM	2.7U	F R
7.	CALCIUM	[2200]	P	19.	SILVER	1.6U	P
8.	CHROMIUM	11	P	20.	SODIUM	[469]	P
9.	COBALT	3.8U	P	21.	THALLIUM	5.4U	F
10.	COPPER	26	P	22.	TIN	29	P
11.	IRON	4120	P	23.	VANADIUM	[12]	P
12.	LEAD	255	P	24.	ZINC	304	P

Cyanide NR

Percent Solids (%) 93

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager JML

ORIGINAL (Red)

00022

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MCD670

Date 6-20-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME ROCKY MOUNTAIN ANALYTICAL
SOW NO. 784
LAB SAMPLE ID. NO. -

CASE NO. 6079/2328C
QC REPORT NO. 56071

Elements Identified and Measured

Concentration: Low X Medium
Matrix: Water Soil X Sludge Other

mg/kg dry weight

1.	ALUMINUM	9.5U	P	13.	MAGNESIUM	148U	P
2.	ANTIMONY	13U	P	14.	MANGANESE	2U	P
3.	ARSENIC	5U	F	15.	MERCURY	0.1U	CV
4.	BARIUM	5.5U	P	16.	NICKEL	3U	P
5.	BERYLLIUM	0.5U	P	17.	POTASSIUM	271U	P
6.	CADMIUM	2.5U	P	18.	SELENIUM	25U	F R
7.	CALCIUM	176U	P	19.	SILVER	1.5U	P
8.	CHROMIUM	2.5U	P	20.	SODIUM	327U	P
9.	COBALT	3.5U	P	21.	THALLIUM	5U	F
10.	COPPER	1.5U	P	22.	TIN	[13]	P
11.	IRON	8U	P	23.	VANADIUM	2.5U	P
12.	LEAD	2.5U	F	24.	ZINC	1U	P

Cyanide NR

Percent Solids (%) 100

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: Sample (a) (Water Blank)
Selenium value reported at a 10x dilution

Lab Manager JML